

HCD-MD595

SERVICE MANUAL

Ver. 1.1 2005.03



US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Chinese Model
Tourist Model

HCD-MD595 is the Amplifier, CD player, MD Deck and Tuner section in DHC-MD595.

US and foreign patents licensed from Dolby Laboratories.

CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM55A-21BD53
	Base Unit Name	BU-21BD53
	Optical Pick-up Name	OP Assy (A-MAX. 2)
MD Section	Model Name Using Similar Mechanism	NEW
	MD Mechanism Type	MDM-7X2A
	Optical Pick-up Name	KMS-262A/J1N

SPECIFICATIONS

Amplifier section

For the U.S. and Canadian models AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 6 ohm loads, both channels driven, from 120 – 10,000 Hz; rated 20 watts per channel minimum RMS power, with no more than 0.9% total harmonic distortion from 250 milliwatts to rated output.

Continuous RMS power output:

25 + 25 watts (6 ohms at 1 kHz,
10% THD, 120 V) (Reference)

European model:

DIN power output (Rated): 25 + 25 watts (6 ohms at 1 kHz,
DIN, 230 V)

Continuous RMS power output (Reference):

30 + 30 watts (6 ohms at 1 kHz,
10% THD, 230 V)

Music power output (Reference):

50 + 50 watts

Other models:

DIN power output (Rated): 20 + 20 watts (6 ohms at 1 kHz,
DIN, 240 V)
18 + 18 watts (6 ohms at 1 kHz,
DIN, 220 V)

Continuous RMS power output (Reference):

25 + 25 watts (6 ohms at 1 kHz,
10% THD, 240 V)
23 + 23 watts (6 ohms at 1 kHz,
10% THD, 220 V)

Peak Music Power Output: 400 watts

Inputs

TAPE IN (phono jacks): voltage 250 mV, impedance
47 kilohms

DIGITAL OPTICAL IN (Supported sampling frequencies:
32 kHz, 44.1 kHz and 48 kHz)

ANALOG IN (stereo minijack):
voltage 250 mV, impedance
47 kilohms

Outputs

TAPE OUT (phono jacks): voltage 250 mV, impedance
1 kilohm

PHONES (stereo minijack):

accepts headphones of 8 ohms or
more.
accepts impedance of 6 to 16
ohms.

SPEAKER:

CD player section

System

Compact disc and digital audio
system

Laser

Semiconductor laser ($\lambda=800$ nm)
Emission duration: continuous

Laser output

Max. 44.6 μ W*
* This output is the value
measured at a distance of 200 mm
from the objective lens surface on
the Optical Pick-up Block with a
7 mm aperture.

Frequency response

2 Hz – 20 kHz

MD deck section

System

MiniDisc digital audio system

Laser

Semiconductor laser ($\lambda=780$ nm)
Emission duration: continuous

Laser output

Max. 44.6 μ W*
* This output is the value
measured at a distance of 200 mm
from the objective lens surface on
the Optical Pick-up Block with a
7 mm aperture.

Sampling frequency

44.1 kHz

Frequency response

5 Hz – 20 kHz

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range

Tourist model: 76.0 – 108.0 MHz
(50 kHz step)

European model: 87.5 – 108.0 MHz
(50 kHz step)

Other models: 87.5 – 108.0 MHz
(100 kHz step)

Antenna

FM lead antenna

Antenna terminals

75 ohms unbalanced

Intermediate frequency

10.7 MHz

– Continued on next page –

COMPACT DISC DECK RECEIVER

9-929-258-12
2005C05-1
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Sony Corporation
Audio Group
Published by Sony Engineering Corporation

SONY®

AM tuner section

Tuning range	
European model:	531 – 1,602 kHz (with the interval set at 9 kHz)
Other models:	531 – 1,602 kHz (with the interval set at 9 kHz) 530 – 1,710 kHz (with the interval set at 10 kHz)
Antenna	AM loop antenna External antenna terminals
Intermediate frequency	450 kHz

General

Power requirements	
U.S.A. and Canadian models:	120 V AC, 60 Hz
Australian model:	220 – 240 V AC, 50/60 Hz
Chinese model:	220 V AC, 50/60 Hz
European model:	230 V AC, 50/60 Hz
Other models:	110 – 120 V or 220 – 240 V AC, 50/60 Hz
Power consumption	
U.S.A. and Canadian models:	60 watts during normal operation
Other models:	70 watts during normal operation

Dimensions (w/h/d) incl. projecting parts and controls	Approx. 215 × 147 × 326 mm
Mass	Approx. 5.0 kg

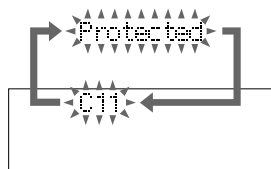
Design and specifications are subject to change without notice.

SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for customers, which are displayed automatically when errors occur, and error codes, which show the error history in the test mode during servicing. For details on how to view error codes for the customer, refer to the following box in the instruction manual. For details on how to check error codes during servicing, refer to the following “Procedure for using the Self-Diagnosis Function (Error History Display Mode)”.

Self-diagnosis Display

This system has a Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three or five letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



C11/Protected

The MD is protected against erasure.
→Remove the MD and slide the tab to close the slot.

C12/Cannot Copy

You tried to record a CD or MD with a format that the system does not support, such as a CD-ROM.
→Remove the disc and turn off the system once, then turn it on again.

C13/REC Error

Recording could not be performed properly.
→Move the system to a stable place, and start recording over from the beginning.
The MD is dirty or scratched, or the MD does not meet the standards.
→Replace the MD and start recording over from the beginning.

C13/Read Error

The MD deck cannot read the disc information properly.
→Remove the MD once, then insert it again.

C14/Toc Error

The MD deck cannot read the disc information properly.
→Replace the MD.
→Erase all the recorded contents of the MD using the All Erase function.

C41/Cannot Copy

The sound source is a copy of a commercially available music software, or you tried to record a CD-R (Recordable CD).
→The Serial Copy Management System prevents making a digital copy.
You cannot record a CD-R.

C71/Check OPT-IN

This appears momentarily because of the signal of the digital broadcast during recording.
→There is no affect on the recorded contents.
No component is connected to the DIGITAL OPTICAL IN jack, or a digital component is not connected properly.
→Connect a digital component to the DIGITAL OPTICAL IN jack properly using a digital connecting cable (not supplied).
The connected digital component is not turned on.
→See the operating instructions supplied with the connected component and confirm whether the component is turned on.
The digital connecting cable connected to the DIGITAL OPTICAL IN jack is pulled out, or the connected digital component is turned off during digital recording.
→Connect the cable, or turn on the digital component.

E0001/MEMORY NG

There is an error in the internal data that the system needs in order to operate.
→Consult your nearest Sony dealer.

E0101/LASER NG

There is a problem with the optical pickup.
→The optical pickup may have failed. Consult your nearest Sony dealer.

MD SECTION

PROCEDURE FOR USING THE SELF-DIAGNOSIS FUNCTION (ERROR HISTORY DISPLAY MODE)

Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-S5EN/provided with unit: 1-476-086-21) buttons. These operations are indicated as “R” in this manual.

Example: [MENU/NO “R”] ...Press the [MENU/NO] button of the remote commander.

Note 2: Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the [I/O] button to turn the power off, and retry to enter the MD test mode.

Note 3: Perform the self-diagnosis function in the “error history display mode” in the MD test mode. The following describes the least required procedure. Be careful not to enter other modes by mistake. If you set other modes accidentally, press the [MENU/NO “R”] button to exit the mode.

Procedure:

1. Press the [I/O] button to turn the power on.
2. Press the [FUNCTION] button to set the MD function.
3. Press three buttons of [▶▶▶▶], [PLAY MODE], and [MD] simultaneously to enter the MD test mode and display “[Check]”.
4. Press the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button to display “[Service]”.
5. Press the [ENTER/YES “R”] button to display “AUTO CHECK”, and press the [▶▶▶▶ “R”] button to display “Err Display”.
6. Press the [ENTER/YES “R”] button to enter the error history mode and display “op rec tm”.
7. Select the contents to be displayed or executed using the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button.
8. Press the [CD-MD SYNC NORMAL] button to light up “IT” indicator, then press the [REC MODE] button will display or execute the contents selected.
9. Press the [REC MODE] button another time returns to step 7.
10. Press the [MENU/NO “R”] button displays “Err Display” and release the error history mode.
11. To release the MD test mode, press the [REPEAT] button to display “Initialize” and release the MD test mode.

ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS













Display	Details of History
op rec tm	Displays the recording time. Displayed as “r□□□□□h”. The displayed time is the total time the laser is set to the high power state. This is about 1/4 of the actual recording time. The time is displayed in decimal digits from 0h.
op play tm	Displays the playback time. Displayed as “p □□min”. The displayed time is the total of the actual play time.
spdl rp tm	Displays the spindle motor running time. Displayed as “r□□□□□h”. The time is displayed in decimal digits from 0h.
retry err	Displays the total number of retries during recording and number of retry errors during play. Displayed as “r □□ p □□”. “r” indicates the retries during recording while “p” indicates the retry errors during play. The number of retries and retry errors are displayed in hexadecimal digits from 00 to FF.
total err	Displays the total number of errors. Displayed as “total □□”. The number of errors is displayed in hexadecimal digits from 00 to FF.
err history	Displays the 10 latest errors. Displayed as “0□ ErrCd @@”. □ indicates the history number. The smaller the number, the more recent is the error. (00 is the latest) @@ indicates the error code. Refer to the following table for the details. The error history can be switched by pressing the  or  “R” button.
retry adrs	Display the 5 latest retry address. Display as “□□ ADRS@@@”. □□ indicates the history number. The smaller the number, the more recent is the error. (00 is the latest) @@@ indicates the cluster of retry address. The number of retry address can be switched by pressing the  or  “R” button.
er refresh	Mode to clear the error history and retry address history. Procedure: 1) Press the  button. 2) The display will change to “er refresh?”, and then press the  button. The operation is over if “Complete!” is displayed. After this mode was executed, check the following: • The data have been cleared. • Perform the recording and playing to check that the mechanism operates normally.
tm refresh	Mode to clear cumulative time of “op rec tm” and “op play tm”. Procedure: 1) Press the  button. 2) The display will change to “tm refresh?”, and then press the  button. The operation is over if “Complete!” is displayed.
op change	Mode to clear cumulative time of “op rec tm” and “op play tm”. These historical data are used to determine the timing when the optical pick-up is to be replaced. When the optical pick-up was replaced, perform this operation to clear historical data. Procedure: 1) Press the  button. 2) The display will change to “op change?”, and then press the  button. The operation is over if “Complete!” is displayed.
spdl change	Mode to clear cumulative time of “spdl rp tm”. This historical data is used to determine the timing when the spindle motor is to be replaced. When the spindle motor was replaced, perform this operation to clear historical data. Procedure: 1) Press the  button. 2) The display will change to “spdl change?”, and then press the  button. The operation is over if “Complete!” is displayed.

Table of Error Codes

Error Code	Details of Error
10	Loading failed
12	Loading switch combination is illegal
20	Head of PTOC could not be read within the specified time
21	Head of PTOC could be read but its content is erroneous
22	Access to UTOC could not be made within the specified time
23	UTOC could be not read within the specified time
24	Content of UTOC is erroneous
30	Playing could not start
31	Content of sector is erroneous
40	Cause of retry occurred during normal recording
41	D-RAM overflowed and retry was executed
42	Retry was executed during the writing to TOC
43	S.F editing was interrupted by retry
50	Address could not be read except in access processing
51	Focusing failed and it is out of control
60	Unlock retry

CD SECTION

PROCEDURE FOR USING THE SELF-DIAGNOSIS FUNCTION (ERROR HISTORY DISPLAY MODE)

1. To Enter The CD Test Mode

Procedure:

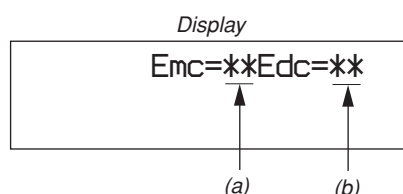
1. Press the button to turn the power on.
2. Press the button to set the CD function.
3. Press three buttons of , , and simultaneously.
4. The set enter the CD test mode (menu) and displays "dvt ERR CODE".

Note: If the triple button pressing failed to activate the CD test mode, press the button, and the button in this order while pressing the button. Also, release the , , and buttons in this order, when releasing the buttons.
If the consequence was displayed except "dvt ERR CODE", press the button to display "dvt ERR CODE".

2. Display of Error Number

Procedure:

1. Press the button to display as bellow.



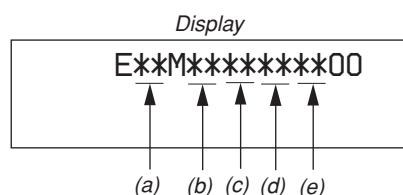
- (a) Number of mechanical error.
- (b) Number of no disc error that occurred after chucking.

2. Press the (CD) button and return to CD test mode menu ("dvt ERR CODE" is displayed).

3. Display of Mechanical Error History

Procedure:

1. In the CD test mode menu, press the button to display "dvt ECODE MEC".
2. Press the button to display as bellow.

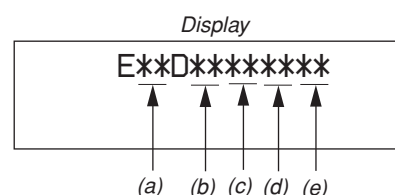


- (a) The number of mechanical error.
Latest one "00" to last ten "09"
(Press the or button to change the error number)
 - (b) FF: Mechanical error, when normal operation.
Other display: Mechanical error, between mechanical initialize.
 - (c), (d), (e): Not used in servicing.
3. Press the (CD) button and return to CD test mode menu ("dvt ECODE MEC" is displayed).

4. Display of No Disc Error History

Procedure:

1. In the CD test mode menu, press the button to display "dvt ECODE BU".
2. Press the button to display as bellow.



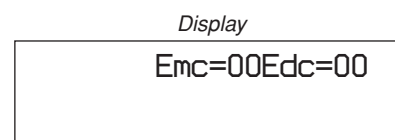
- (a) The number of no disc error.
Latest one "00" to last ten "09"
(Press the or button to change the error number)
 - (b) 01: Focus error
02: GFS error
03: Set up error
04: Focus error (not used in servicing)
 - (c) 00: No disc error (Did not chucking retry)
02: No disc error (Chucking retry to completion)
 - (d) The status, when determined no disc error.
2x: During setting up
3x: During reading TOC
4x: During accessing
5x: During playback
6x: During pause
7x: During manual search (during playback)
8x: During manual search (during pause)
3. Press the (CD) button and return to CD test mode menu ("dvt ECODE BU" is displayed).

4. To Erase The Error History

When returning the unit to the customer after completing repairs, perform this to erase the past error history.

Procedure:

1. In the CD test mode menu, press the button to display "dvt ECNT0 MEC". (When erase the mechanical error)
Or one more press the button to display "dvt ECNT0 BU". (When erase the no disc error)
2. Press the button to erase the error history (mechanical error or no disc error) and display as bellow.



5. To Release The CD Test Mode

Press the button to turn the power off.

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Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

与安全有关的零部件须知

在原理图上用阴影及 \triangle 标记来识别的零部件在安全操作上是具有关键性的。这些零部件要用本手册中所示的部件号对应的索尼零部件进行更换。

在安全操作上具有关键性的电路调整与索尼公司出版的维修手册完全一致。在更换关键零部件时或怀疑动作失常时，请进行这些调整操作。

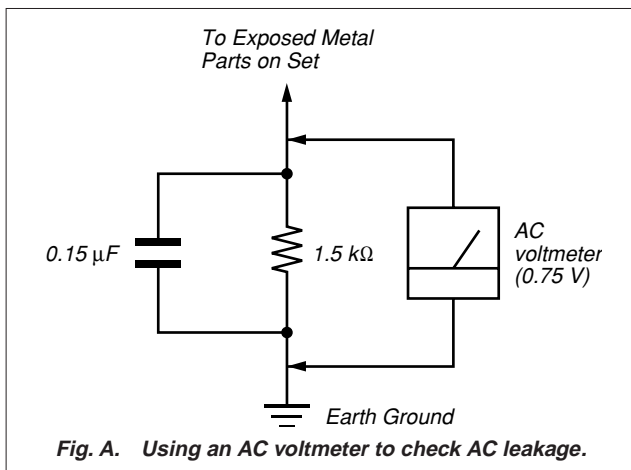
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

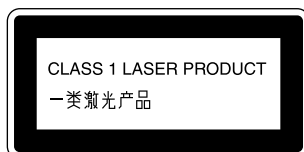
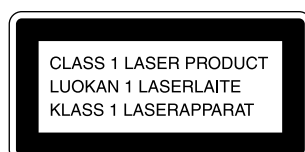
1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)



CAUTION

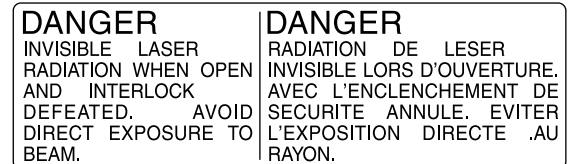
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.



Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.



CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SECTION 1

SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

For CD

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveforms is output three times.

For MD

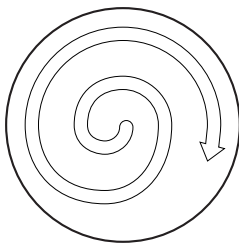
NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

CLEANING OBJECTIVE LENS OF OPTICAL PICK-UP

- In cleaning the objective lens of optical pick-up, be sure the following below.

1. In cleaning the lens, do not apply an excessive force.
As the optical pick-up is vulnerable, application of excessive force could damage the lens holder.
2. In cleaning, do not use a cleaner other than exclusive cleaning liquid (KK-91 or isopropyl alcohol).
3. Wipe the objective lens spirally from center toward outside.
(See Figure A)

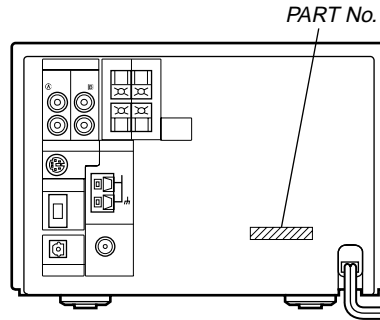


(Figure A)

4. Eject the disk, if loaded.
5. Disconnect the power cord from the socket to shut off the power supply.
6. When cleaning the objective lens of optical pick-up in CD, refer to "HOLDER (BU) ASS'Y" on page 29 for removing HOLDER (BU) ASS'Y.

MODEL IDENTIFICATION

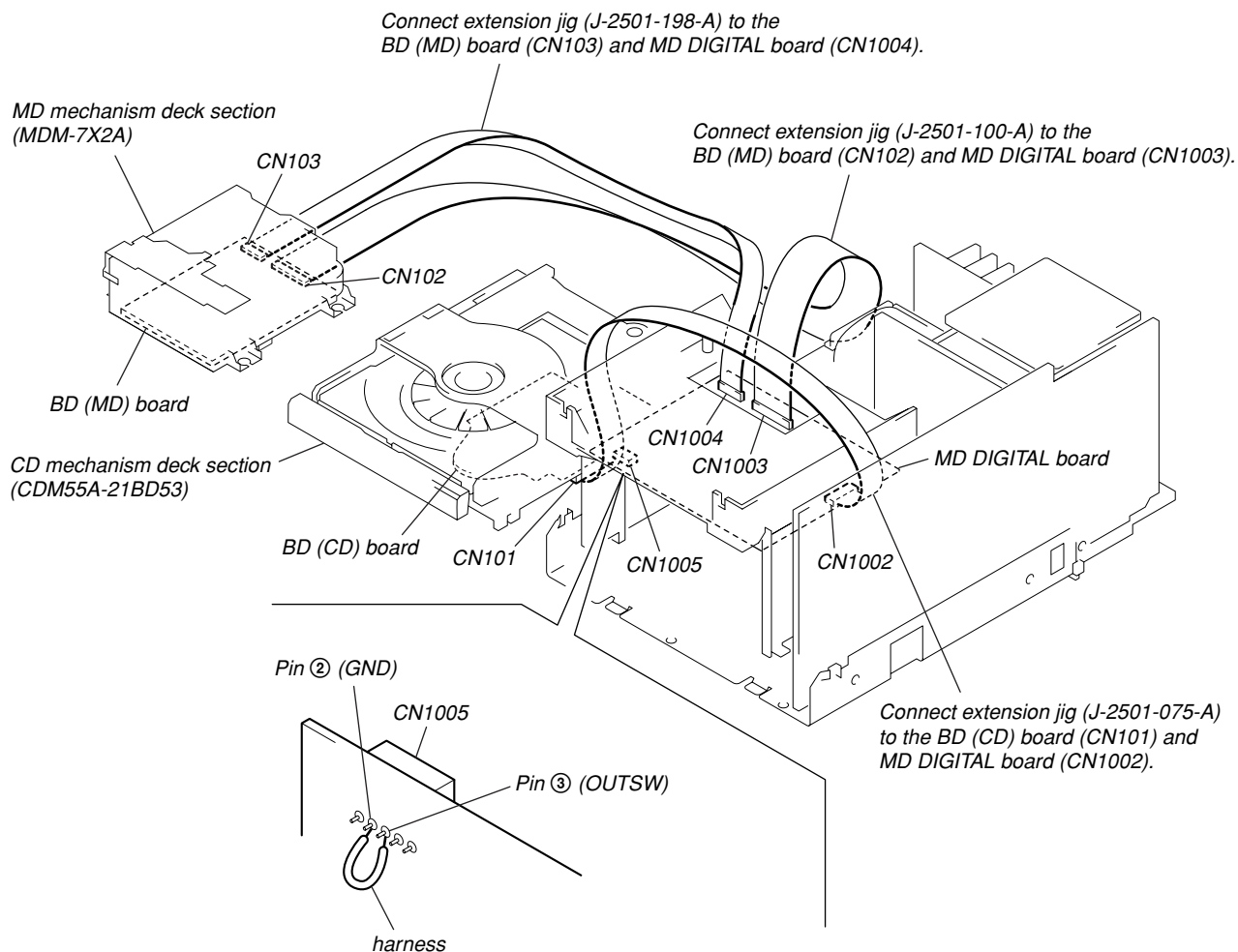
— Back panel —



Model	Part No.
AEP, UK and North European models	4-228-095-1□
US and Canadian models	4-228-095-2□
Australian model	4-228-095-5□
Malaysia, Singapore, Hong Kong and Tourist models	4-228-111-3□

SERVICE POSITION

- In checking the MD mechanism deck section (MDM-7X2A), prepare two extension jigs (Part No. J-2501-100-A: 1.00 mm 27 core and Part No. J-2501-198-A: 1.00 mm 17 core).
- In checking the CD mechanism deck section (CDM55A-21BD53), prepare extension jig (Part No. J-2501-075-A: 1.00 mm 21 core.)



Note on Checking CD Mechanism Deck Section

In performing the operation check with the CD mechanism deck section removed from the main unit, the CD disc loading will be disabled if the connector cable between MD DIGITAL board (CN1005) and LOADING board (CN151) is disconnected. Accordingly, make preparation through the following steps.

1. Insert the CD disc for test with the set assembled.
2. Unplug the AC power cord to turn the power off, and remove the CD mechanism deck section. (Disconnect the connector cable between MD DIGITAL board (CN1005) and LOADING board (CN151), and also the connector cable between MD DIGITAL board (CN1002) and BD (CD) board (CN101))
3. Connect the CN1005 pin ③ (OUTSW) and pin ② (GND) on the MD DIGITAL board with a lead wire.
4. Connect the connectors between MD DIGITAL board (CN1002) and BD (CD) board (CN101) with the extension tool (part No.: J-2501-075-A).





Note 1: Under this condition, the CD can be played but the disc loading operation is disabled.

Note 2: After checking, disconnect the lead wire connected in step 3.

MC COLD RESET





- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.



Procedure:


- Press the  button to turn the power on.
- Press three buttons of , , and  (CD) simultaneously.
- The set is reset, and displays “COLD RESET”, then becomes standby status.

AMP TEST

Procedure:

- Press the  button to turn the power on.
- Press three buttons of , , and  (MD) simultaneously.
- Each buttons are pressed, it changes display as follows.

Button	Display
 (CD)	7[TESTMIN]
REC MODE	8[TESTMID]
 (MD)	9[TESTMAX]







-  knob is turned, it changes display as follows.

Turn Direction	Display
clockwise	VOLUME MIN
center	VOLUME 21
counterclockwise	VOLUME MAX

- To release from this mode, press the  button to turn the power off and cold reset.








VERSION DISPLAY

Procedure:

- Press the  button to turn the power on.
- Press three buttons of , , and  simultaneously.
- Enter the version display mode and display STR version.
- Each time the  (MD) button is pressed, it changes display STR version → CD version → MD version → STR version → ...
- To release from this mode, press the  button to turn the power off.







LCD AND LED TEST

Procedure:

- Press the  button to turn the power on.
- Press three buttons of , , and  (CD) simultaneously.
- Liquid crystal display and LEDs are all turned on.
- Each time the  (MD) button is pressed, it changes display all turned on → all turned off → pattern 1 → pattern 2 → all turned on → ...
- Each time the  (CD) button is pressed, it changes LED indication all turned on → all turned off → “I” → “REC” → “▶” (CD) → “■” (CD) → “▶” (MD) → “■” (MD) → all turned on → ...
- To release from this mode, press the  button to turn the power off.

KEY TEST

Procedure:

- Press the  button to turn the power on.
- Press three buttons of , , and  simultaneously.
- Enter the key test mode and display “KEY00 VOL0”.
- Each time a button is pressed, “KEY” value increases. However, once a button is pressed, it is no longer taken into account.
“VOL” value increases like 0, 1, 2 ... if turn the  knob clockwise, or it decreases like 9, 8, 7 ... if turn the  knob counterclockwise.
- To release from this mode, press three buttons in the same manner as step 2 , or disconnect the power cord.

MD SECTION

JIG FOR CHECKING BD (MD) BOARD WAVEFORM

The special jig (J-2501-196-A) is useful for checking the waveform of the BD (MD) board. The names of terminals and the checking items to be performed are shown as follows.

GND : Ground

I+3V : For measuring IOP (Check the deterioration of the optical pick-up laser)

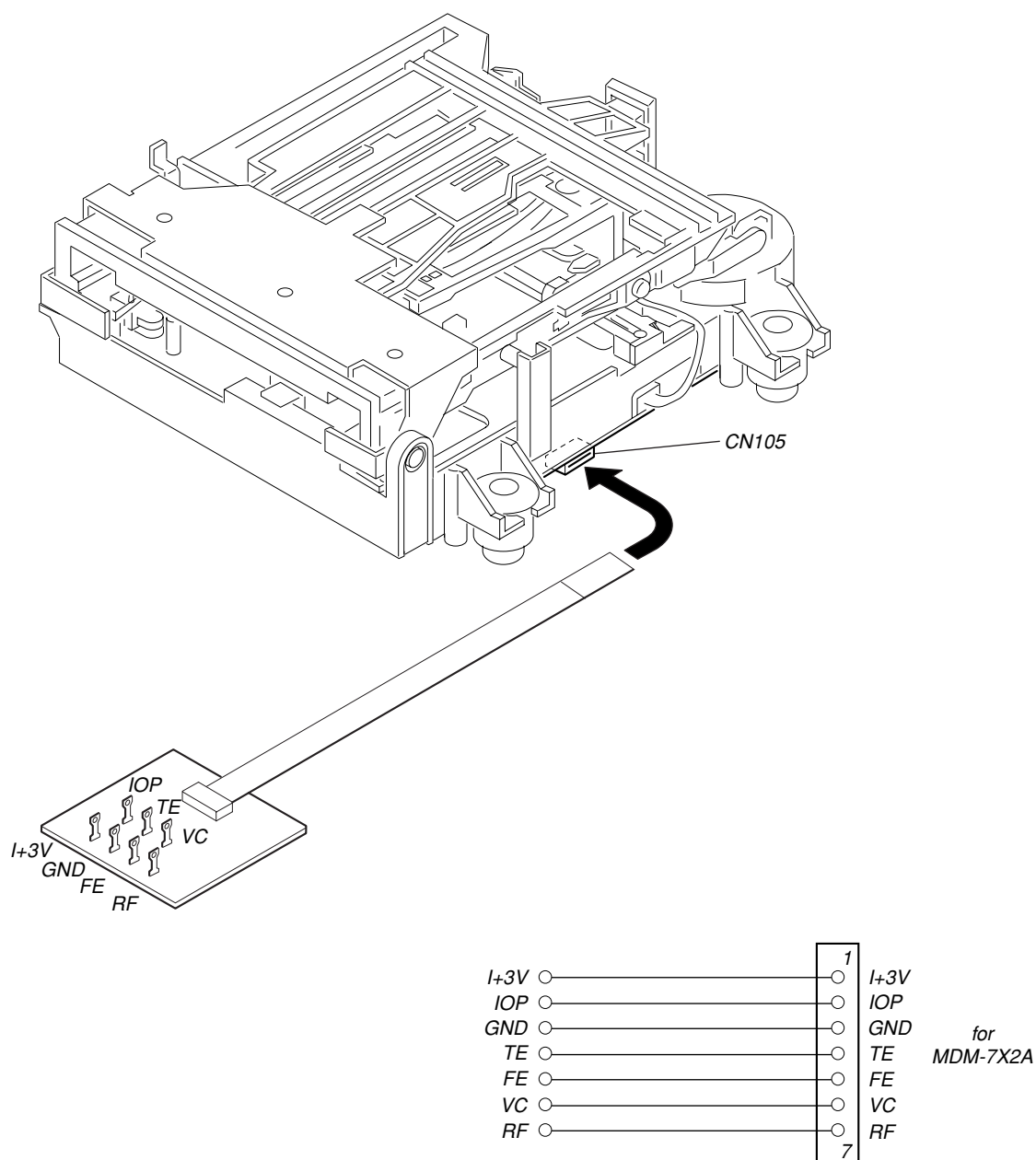
IOP : For measuring IOP (Check the deterioration of the optical pick-up laser)

TE : Tracking error signal (Traverse adjustment)

VC : Reference level for checking the signal

RF : RF signal (Check jitter)

FE : Focus error signal



Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-S5EN/provided with unit: 1-476-086-21) buttons. These operations are indicated as “R” in this manual.

Example: [MENU/NO “R”] ... Press the [MENU/NO] button of the remote commander.

Note 2: Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the [I/O] button to turn the power off, and retry to enter the MD test mode.

IOP DATA RECORDING AND DISPLAY WHEN OPTICAL PICK-UP AND NON-VOLATILE MEMORY (IC195 OF BD (MD) BOARD) ARE REPLACED

The IOP value labeled on the optical pick-up can be recorded in the non-volatile memory. By recording the value, it will eliminate the need to look at the value on the label of the optical pick-up. When replacing the optical pick-up or non-volatile memory (IC195 of BD (MD) board), record the IOP value on the optical pick-up according to the following procedure.

Record Procedure:

1. Press the [I/O] button to turn the power on.
2. Press the [FUNCTION] button to set the MD function.
3. Press three buttons of [▶▶▶▶], [PLAY MODE], and [MD ▲] simultaneously to enter the MD test mode and display “[Check]”.
4. Press the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button to display “[Service]”.
5. Press the [ENTER/YES “R”] button to display “AUTO CHECK”, and press the [▶▶▶▶ “R”] button to display “Iop Write”.
6. Press the [ENTER/YES “R”] button.
7. The display becomes “Ref= @ @ @ . @” (@ is an arbitrary number) and the numbers which can be changed will blink.
8. Input the IOP value written on the optical pick-up.
To select the number : Press the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button.
To select the digit : Press the [REC MODE] button.
9. When the [ENTER/YES “R”] button is pressed, the display becomes “Measu= @ @ @ . @” (@ is an arbitrary number).
10. As the adjustment results are recorded for the step 9 value. Leave it as it is and press the [ENTER/YES “R”] button.
11. “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write”.
12. Press the [REPEAT] button to complete. “Initialize” will be displayed and release the MD test mode.

Display Procedure:

1. Press the [I/O] button to turn the power on.
2. Press the [FUNCTION] button to set the MD function.
3. Press three buttons of [▶▶▶▶], [PLAY MODE], and [MD ▲] simultaneously to enter the MD test mode and display “Check”.
4. Press the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button to display “Service”.
5. Press the [ENTER/YES “R”] button to display “AUTO CHECK”, and press the [▶▶▶▶ “R”] button to display “Iop Read”.
6. Press the [ENTER/YES “R”] button.
7. “@ @ @ . @ / ## . #” is displayed and the recorded contents are displayed.
@ @ @ . @ : Indicates the Iop value labeled on the pick-up.
. # : Indicates the Iop value after adjustment.
8. Press the [REPEAT] button to complete. “Initialize” will be displayed and release the MD test mode.

WHEN MEMORY NG IS DISPLAYED

If the nonvolatile memory data is abnormal, “E001 MEMORY NG” will be displayed so that the MD deck does not continue operations. In this case, set the test mode promptly and perform the following procedure.

Procedure:

1. Enter the MD test mode (refer to page 32).
2. Normally a message for selecting the test mode will be displayed. However if the nonvolatile memory is abnormal, the following will be displayed “INIT EEP?”.
3. Press the [■] (MD) and [MD ▲] buttons simultaneously.
4. Press the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button to display “MDM-7X2A”.
5. Press the [ENTER/YES “R”] button. If the nonvolatile memory is successfully overwritten, the normal MD test mode will be set and a message to select the MD test mode will be displayed.

CHECKS PRIOR TO PARTS REPLACEMENT AND ADJUSTMENTS IN MD

Before performing repairs, perform the following checks to determine the faulty locations up to a certain extent. Details of the procedures are described in “5 Electrical Adjustments”.

	Criteria for Determination (Unsatisfactory if specified value is not satisfied)	Measure if unsatisfactory
Laser power check (6-2 : See page 40)	<ul style="list-style-type: none"> 0.9 mW power Specified value : 0.84 to 0.92 mW 7.0 mW power Specified value : 6.8 to 7.2 mW 	<ul style="list-style-type: none"> Clean the optical pick-up Adjust again Replace the optical pick-up
	<ul style="list-style-type: none"> Iop (at 8.4mW) Labeled on the optical pick-up Iop value \pm 10mA 	<ul style="list-style-type: none"> Replace the optical pick-up
Traverse check (6-6 : See page 41)	<ul style="list-style-type: none"> Traverse waveform Specified value : Below 10% offset 	<ul style="list-style-type: none"> Replace the optical pick-up
Focus bias check (6-7 : See page 42)	<ul style="list-style-type: none"> Error rate check Specified value : For points A and B C1 error : About 200 AD error : below 2 For point C C1 error: 20 AD error: below 2 	<ul style="list-style-type: none"> Replace the optical pick-up
C PLAY check (6-8 : See page 42)	<ul style="list-style-type: none"> Error rate check Specified value: <ol style="list-style-type: none"> When using test disc (MDW-74/GA-1) C1 error : Below 20 AD error : 00 When using check disc (TDYS-1) C1 error : Below 20 	<ul style="list-style-type: none"> Replace the optical pick-up
Self-recording/playback check (6-9 : See page 42)	<ul style="list-style-type: none"> CPLAY error rate check Specified value: C1 error : Below 20 AD error : Below 2 	If always unsatisfactory: <ul style="list-style-type: none"> Replace the overwrite head Check for disconnection of the circuits around the overwrite head
		If occasionally unsatisfactory: <ul style="list-style-type: none"> Check if the overwrite head is distorted Check the mechanism around the sled
Temperature compensation offset check (6-1 : See page 40)	<ul style="list-style-type: none"> Unsatisfactory if displayed as T=@ @ (##) [NG]” NG (@ @, ## are both arbitrary numbers) 	<ul style="list-style-type: none"> Check for disconnection of the circuits around D101 (BD (MD) board) Check the signals around IC101, IC151, CN102, CN103 (BD (MD) board)

Note:

The criteria for determination above is intended merely to determine if satisfactory or not, and does not serve as the specified value for adjustments. When performing adjustments, use the specified values for adjustments.

RETRY CAUSE DISPLAY MODE IN MD

- In this test mode, the causes for retry of the unit during recording can be displayed on the liquid crystal display. During playback, the “track mode” for obtaining track information will be set.
This is useful for locating the faulty part of the unit.
- The following will be displayed :
During recording and stop: Retry cause, number of retries, and number of retry errors.
During playback : Information such as type of disc played, part played, copyright.
These are displayed in hexadecimal.

Procedure:

- Load a recordable disc whose contents can be erased into the unit.
- Press the **MENU/NO “R”** button. When “Edit Menu” is displayed on the liquid crystal display, press the **◀◀ “R”** or **▶▶▶▶ “R”** button to display “All Erase?”.
- Press the **ENTER/YES “R”** button.
- When “All Erase??” is displayed on the liquid crystal display, the music calendar number blinks.
- Press the **ENTER/YES “R”** button to display “Complete!”.
- Press the **REC/REC IT** button to start recording. Then press the **▶▶ II** (MD) button and start recording. If recording cannot be performed, press the **FUNCTION** button and set a different function.
- Press three buttons of **◀◀◀**, **PLAY MODE** and **▶▶ II** (MD) simultaneously to enter the retry cause display mode.
- To check the “track mode”, press the **▶▶ II** (MD) button to start playback.
- To release this mode, press the **I/O** button to turn the power off. When “TOC” goes off, disconnect the power plug from the outlet.
If the test mode cannot be released, refer to “MC COLD RESET” on page 10.

**Fig. 1 Reading the Test Mode Display
(During recording and stop)**

RTs@@c##e**
Liquid crystal display

@@ : Cause of retry
: Number of retries
** : Number of retry errors

**Fig. 2 Reading the Test Mode Display
(During playback)**

@@ ##*** \$\$
Liquid crystal display

@@ : Parts No. (name of area named on TOC)
: Cluster } Address
** : Sector }
\$\$: Track mode (Track information such as copy-right information of each part)

Reading the Retry Cause Display

	Higher Bits				Lower Bits				Hexa-decimal	Cause of Retry	Occurring conditions
Hexadecimal	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary	0	0	0	0	0	0	0	1	01	shock	When track jump (shock) is detected
	0	0	0	0	0	0	1	0	02	ader5	When ADER was counted more than five times continuously
	0	0	0	0	0	1	0	0	04	Discontinuous address	When ADIP address is not continuous
	0	0	0	0	1	0	0	0	08	DIN unlock	When DIN unlock is detected
	0	0	0	1	0	0	0	0	10	FCS incorrect	When not in focus
	0	0	1	0	0	0	0	0	20	IVR rec error	When ABCD signal level exceeds the specified range
	0	1	0	0	0	0	0	0	40	CLV unlock	When CLV is unlocked
	1	0	0	0	0	0	0	0	80	Access fault	When access operation is not performed normally

Reading the Display:

Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example

When 42 is displayed:

Higher bit: 4 = 0100 → b6

Lower bit: 2 = 0010 → b1

In this case, the retry cause is combined of “CLV unlock” and “ader5”.

When A2 is displayed:

Higher bit: A = 1010 → b7 + b5

Lower bit: 2 = 0010 → b1

The retry cause in this case is combined of “Access fault”, “IVR rec error”, and “ader5”.

Reading the Retry Cause Display

	Higher Bits				Lower Bits				Hexa- decimal	Details	
Hexadecimal	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0		When 0	When 1
Binary	0	0	0	0	0	0	0	1	01	Emphasis OFF	Emphasis ON
	0	0	0	0	0	0	1	0	02	Monaural	Stereo
	0	0	0	0	0	1	0	0	04	This is 2-bit display. Normally 01. 01:Normal audio. Others:Invalid	
	0	0	0	0	1	0	0	0	08		
	0	0	0	1	0	0	0	0	10	Audio (Normal)	Invalid
	0	0	1	0	0	0	0	0	20	Original	Digital copy
	0	1	0	0	0	0	0	0	40	Copyright	No copyright
	1	0	0	0	0	0	0	0	80	Write prohibited	Write allowed

Reading the Display:

Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example When 84 is displayed:

Higher bit: 8 = 1000 → b7

Lower bit : 4 = 0100 → b2

In this case, as b2 and b7 are 1 and others are 0, it can be determined that the retry cause is combined of “Emphasis OFF”, “Monaural”, “Original”, “Copyright”, and “Write allowed”.

Example When 07 is displayed:

Higher bit: 0 = 0000 → All 0

Lower bit : 7 = 0111 → b0 + b1 + b2

In this case, as b0, b1, and b2 are 1 and others are 0, it can be determined that the retry cause is combined of “Emphasis ON”, “Stereo”, “Original”, “Copyright”, and “Write prohibited”.








Hexadecimal → Binary Conversion Table








Hexadecimal	Binary	Hexadecimal	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

CD SECTION

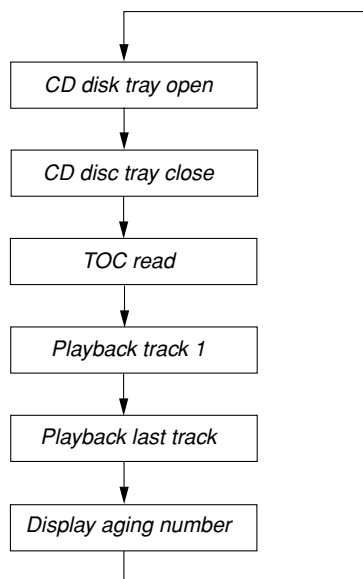
CD AGING MODE


Procedure:

1. Press the  button to turn the power on.
2. Press the  button to set the CD function, and press the  button to insert a disc.
3. Press three buttons of , , and  (MD) simultaneously.
4. The set displays “AGING SEL=00”. Between it is displayed, press the  button to start CD aging mode.
5. The sequence during the CD aging mode is following as below.

Note: If the triple button pressing failed to activate the CD test mode, press the  button, and the  (MD) button in this order while pressing the  button. Also, release the , , and  buttons in this order, when releasing the buttons.
If the consequence was that display “AGING SEL=01”, press the  button to display “AGING SEL=00”. “AGING SEL=01” is not used in servicing.

CD aging mode sequence:



6. To release from this mode, press the  button to turn the power off.

Note: Refer to “Error History Display Mode” (page 5) for display at an error occurred.





CD-TEXT TEST DISC

This unit is able to display the test data (character information) written in the CD on its fluorescent indicator tube.

The CD-TEXT TEST DISC (TGCS-313:4-989-366-01) is used for checking the display.

To check, perform the following procedure.

Checking Method:

1. Press the  button to turn the power on, set the disc to the disc table with the “test disc” label facing up, and chuck the disc.
2. Press the  (CD) button and playback the disc.
3. The following will be displayed on the liquid crystal display.
Display : 1kHz/0dB/L&R
4. Pressing the  or  button, select the track. The text data of each track will be displayed.
For details of the displayed contents for each track, refer to “Table 1 : CD-TEXT TEST DISC TEXT Data Contents” and “Table 2 : CD-TEXT TEST DISC Recorded Contents and Display”.

Restrictions in CD-TEXT Display

In this unit, some special characters will not be displayed properly. These will be displayed as a space or a character resembling it. For details, refer to “Table 2 : CD-TEXT DISC Recorded Contents and Display”.

Table 1 : CD-TEXT TEST DISC TEXT Data Contents (TRACKS No. 1 to 41:Normal Characters)

TRACK No.	Displayed Contents	TRACK No.	Displayed Contents
1	1kHz/0dB/L&R	22	1kHz/−90dB/L&R
2	20Hz/0dB/L&R	23	Infinity Zero w/o emphasis//L&R
3	40Hz/0dB/L&R	24	Infinity Zero with emphasis//L&R
4	100Hz/0dB/L&R	25	400Hz+7kHz(4:1)/0dB/L&R
5	200Hz/0dB/L&R	26	400Hz+7kHz(4:1)/−10dB/L&R
6	500Hz/0dB/L&R	27	19kHz+20kHz(1:1)/0dB/L&R
7	1kHz/0dB/L&R	28	19kHz+20kHz(1:1)/−10dB/L&R
8	5kHz/0dB/L&R	29	100Hz/0dB/L*
9	7kHz/0dB/L&R	30	1kHz/0dB/L*
10	10kHz/0dB/L&R	31	10kHz/0dB/L*
11	16kHz/0dB/L&R	32	20kHz/0dB/L*
12	18kHz/0dB/L&R	33	100Hz/0dB/R*
13	20kHz/0dB/L&R	34	1kHz/0dB/R*
14	1kHz/0dB/L&R	35	10kHz/0dB/R*
15	1kHz/−1dB/L&R	36	20kHz/0dB/R*
16	1kHz/−3dB/L&R	37	100Hz Squer Wave//L&R
17	1kHz/−6dB/L&R	38	1kHz Squer Wave//L&R
18	1kHz/−10dB/L&R	39	1kHz w/emphasis/−0.37dB/L&R
19	1kHz/−20dB/L&R	40	5kHz w/emphasis/−4.53dB/L&R
20	1kHz/−60dB/L&R	41	16kHz w/emphasis/−9.04dB/L&R
21	1kHz/−80dB/L&R		

Note: The contents of Track No. 1 to 41 are the same as those of the current TEST DISC-their titles are displayed.

Table 2: CD-TEXT TEST DISC Recorded Contents and Display

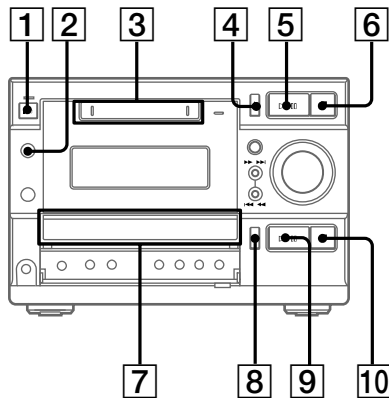
(In this unit, some special characters cannot be displayed. This is not a fault)

TRACK No.	Recorded contents	Display
42	! " # \$ % & ' (21h to 27h) 1kHz 0dB L&R	← All the same
43	() * + , - . / (28h to 2Fh)	← All the same
44	0 1 2 3 4 5 6 7 (30h to 37h)	← All the same
45	8 9 : ; < = > ? (38h to 3Fh)	← All the same
46	@ A B C D E F G (40h to 47h)	← All the same
47	H I J K L M N O (48h to 4Fh)	← All the same
48	P Q R S T U V W (50h to 57h)	← All the same
49	X Y Z [\] ^ _ (58h to 5Fh)	← All the same
50	` a b c d e f g (60h to 67h)	← All the same
51	h i j k l m n o (68h to 6Fh)	← All the same
52	p q r s t u v w (70h to 77h)	← All the same
53	x y z { } ~ ■ (78h to 7Fh)	← All the same
54	■ i ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1	(A0h to A7h) 8859-1
55	¨ © ª « ¬ ® ¯ (A8h to AFh)	(A8h to AFh)
56	° ± ² ³ ´ µ ¶ • (B0h to B7h)	(B0h to B7h)
57	† † ° » ¼ ½ ¾ ¿ (B8h to BFh)	(B8h to BFh)
58	À Á Â Ã Ä Å Æ Ç (C0h to C7h)	A A A A A A C (C0h to C7h)
59	È É Ê Ë Ì Í Î Ï (C8h to CFh)	E E E E I I I I (C8h to CFh)
60	Ð Ñ Ò Ó Ô Õ Ö × (D0h to D7h)	D N O O O O O (D0h to D7h)
61	Ø Ù Ú Û Ü Ý Þ ß (D8h to DFh)	O U U U U Y (D8h to DFh)
62	à á â ã ä å æ ç (E0h to E7h)	a a a a a a c (E0h to E7h)
63	è é ê ë ì í î ï (E8h to FFh)	e e e e i i i i (E8h to FFh)
64	ð ñ ò ó ô õ ö ÷ (F0h to F7h)	d n o o o o o (F0h to F7h)
65	ø ù ú û ü ý þ ÿ (F8h to FFh)	o u u u u y y (F8h to FFh)
66	No.66	← All the same
67	No.67	← All the same
to	to	to
99	No.99	← All the same

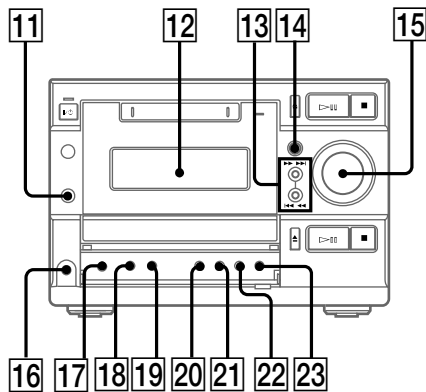
SECTION 2 GENERAL

LOCATION OF CONTROLS

• Front View

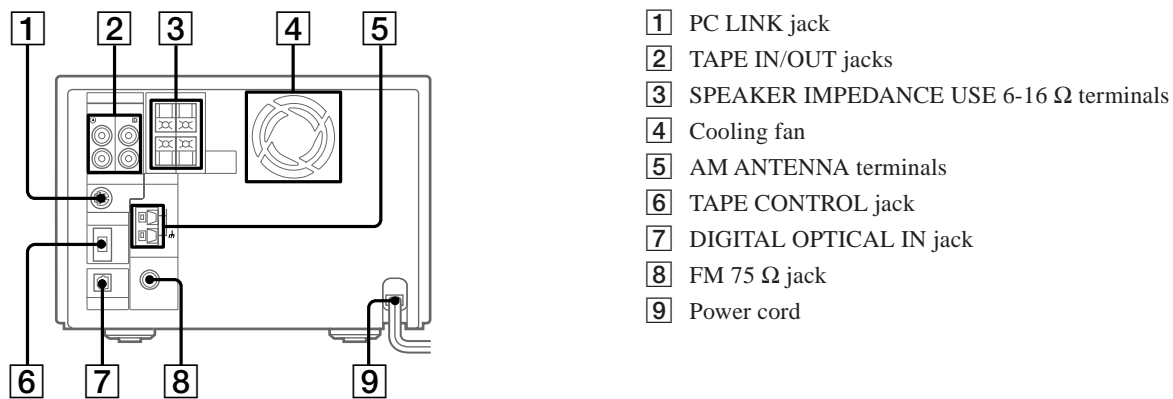


- 1 I/⏻ button and indicator
- 2 Remote sensor
- 3 MD disc slot
- 4 MD ▶ button
- 5 ▶ || (MD) button and indicator
- 6 ■ (MD) button
- 7 CD disc tray
- 8 CD ▶ button
- 9 ▶ || (CD) button and indicator
- 10 ■ (CD) button

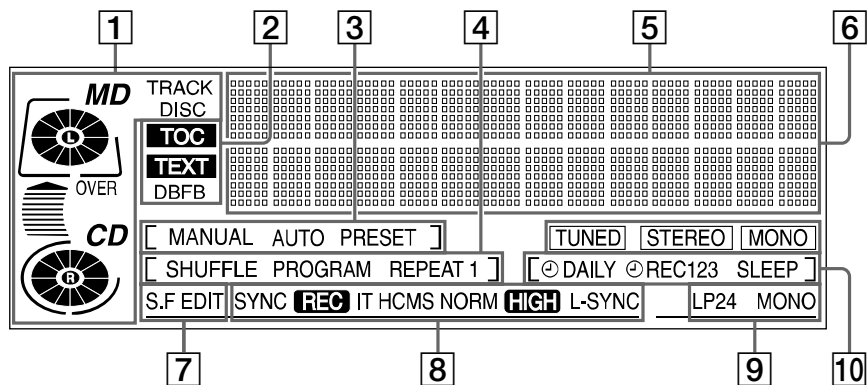


- 11 ANALOG IN jack
- 12 Liquid crystal display
- 13 ◀◀ ◀▶▶▶▶▶ (MD/CD), TUNING +/- buttons
- 14 TUNER/BAND button
- 15 VOLUME knob
- 16 PHONES jack
- 17 FUNCTION button
- 18 PLAY MODE, TUNING MODE button
- 19 REPEAT, STEREO/MONO button
- 20 REC MODE button
- 21 REC/REC IT button
- 22 CD-MD SYNC NORMAL button
- 23 CD-MD SYNC HIGH button

• Rear View



• Liquid Crystal Display



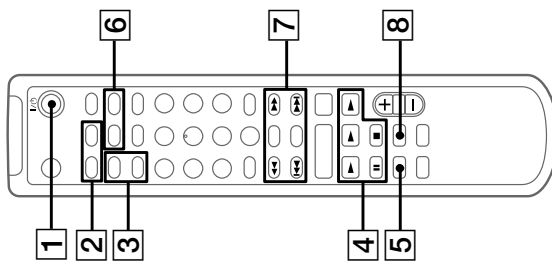
- 1 CD/MD, Sound level indicators
- 2 TOC, TEXT, DBFB indicators
- 3 Tuner mode indicators
- 4 CD/MD play mode indicators
- 5, 6 Text information (clock, disc name, play time, etc.) indicator
- 7 S.F EDIT indicator
- 8 REC indicators
- 9 REC mode indicators
- 10 Timer indicators

Parts descriptions for the remote

You can use the supplied remote to control the system.

Note

- You cannot perform the following operations with the remote;
- Removing discs
 - Selecting the recording mode
 - CD-MD Synchro Recording

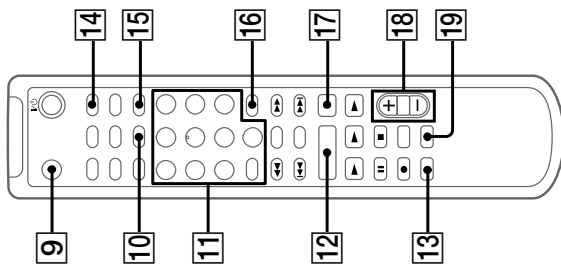


- 1 I/O (power) switch**
- 2 CLOCK/TIMER SELECT button**
Press to check timer settings, or to set the timer on/off. (pages 56, 58)
- CLOCK/TIMER SET button**
Press to set the clock and timer functions. (pages 6, 55, 57)

continued

Parts descriptions for the remote (continued)

- 3 DISPLAY button**
Press to switch the contents appearing on the upper level of the display (preset equalizer name, clock, disc name/track name/radio station name, volume, etc.). (pages 9, 17, 23)
- TIME button**
Press to switch the contents appearing on the lower level of the display (CD/MD play time mode, etc.). (pages 9, 17, 23)
- 4 ► (play) button**
- II (pause) button**
- (stop) button**
- 5 MD ● REC button**
- 6 PLAY MODE/TUNING MODE button**
This functions as the PLAY MODE button when playing a CD or MD. Press to select normal play, Shuffle Play or Program Play.
This functions as the TUNING MODE button when listening to the radio. Press to select MANUAL, AUTO or PRESET tuning. (pages 15, 16, 21)
- REPEAT button**
Press to play a track or all the tracks repeatedly. (pages 15, 20)
- 7 CURSOR←/→, ◀/▶ buttons**
Press to skip to the beginning of the next track or the previous track when playing a CD or MD.
Press to tune the frequency when listening to the radio.
These buttons are also used to set the clock, make the Program Play setting, adjust the recording level, and select characters to be entered, etc.
+/-, ◀/▶/▶▶ (AMS: Automatic Music Sensor) buttons
- ENTER/YES button**
Press to set the clock, Program Play and to label a CD, MD and preset station, or to enter the settings in "Edit Menu" or "Setup Menu".
- MENU/NO button**
Press to label a CD, MD and preset station.
- 8 TIME MACHINE REC button**



- 9 SLEEP button**
Press to set Sleep Timer. (page 55)
- 10 NAME EDIT/SELECT button**
Press to display the text input screen and to select the type of characters to be input. (pages 18, 38, 53)
- 11 Letter/Number buttons**
Press to select track numbers of a CD, MD, or preset station.
Press to enter the corresponding letter or number at the character input screen.
- 12 FUNCTION button**
Press to switch the sound source.
Each time you press this button, the sound source changes as follows:
→ CD → → → TUNER → OPTICAL IN →
→ TAPE → → → MD → → → ANALOG IN →

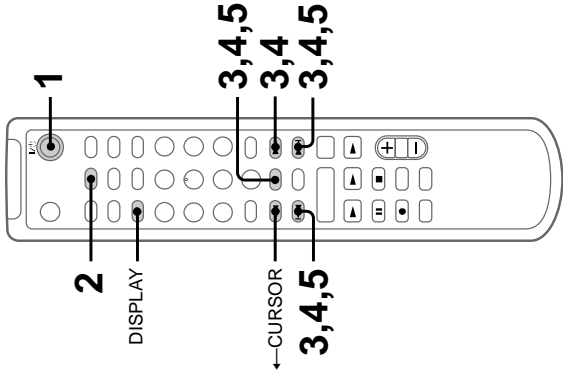
- 13 PRESET EQ button**
Press to select the type of the preset equalizer. (page 52)
- 14 STEREO/MONO button**
Press to switch between stereo and monaural when receiving a stereo broadcast, etc.
- 15 SCROLL button**
Press to display the disc title or track title scrolling. (pages 18, 19, 23, 40)
- 16 CLEAR button**
Press to cancel the selection. (pages 16, 19, 22, 39, 54)
- 17 TUNER/BAND button**
Press to select the tuner for the sound source, or to select the FM or AM band.
- 18 VOLUME +/- buttons**
Press to adjust the volume.
- 19 DBFB button**
Press to reinforce the bass sound. (page 52)

Additional Information

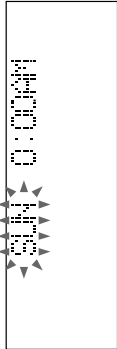
Additional Information

Step 2: Setting the time

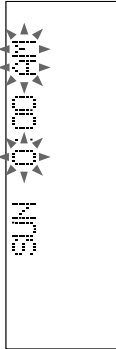
You must set the time beforehand to use the timer functions.
The clock is on a 24-hour system for the European model, and a 12-hour system for other models.
The 12-hour system is used for illustration purposes.



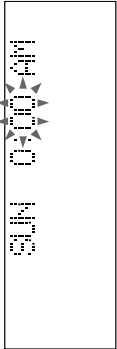
- 1 Turn on the system.
- 2 Press CLOCK/TIMER SET.
The time setting display appears, and the day indication "SUN" flashes.



- 3 Press – or + to set the day, then press ENTER/YES or CURSOR→.
The hour indication flashes.
(For models using a 12-hour system, noon is indicated as 0:00 PM, and midnight as 0:00 AM.)



- 4 Press – or + to set the hour, then press ENTER/YES or CURSOR→.
The minute indication flashes.



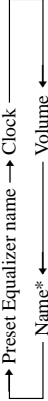
- 5 Press – or + to set the minute, then press ENTER/YES.
The clock starts.

If you made a mistake
Press ←CURSOR or CURSOR→ until the indication you wish to change (day, hour, minute) flashes, then change the setting.

Showing the time

In consideration of reducing standby power, this system can select whether or not to display the clock in standby mode. The system is set at the factory to not display the clock when the power is off (**Power Saving Mode**). To display the clock even when the power is off, press DISPLAY or TIME while the power is off. Press the button again to turn the clock display off and activate the Power Saving Mode.

While the system is on, the information that appears at the top of the display changes as follows each time you press DISPLAY.



* Displayed only when disc title, track title, radio station name or other name information is labeled. No display when this information is not labeled.

Tip

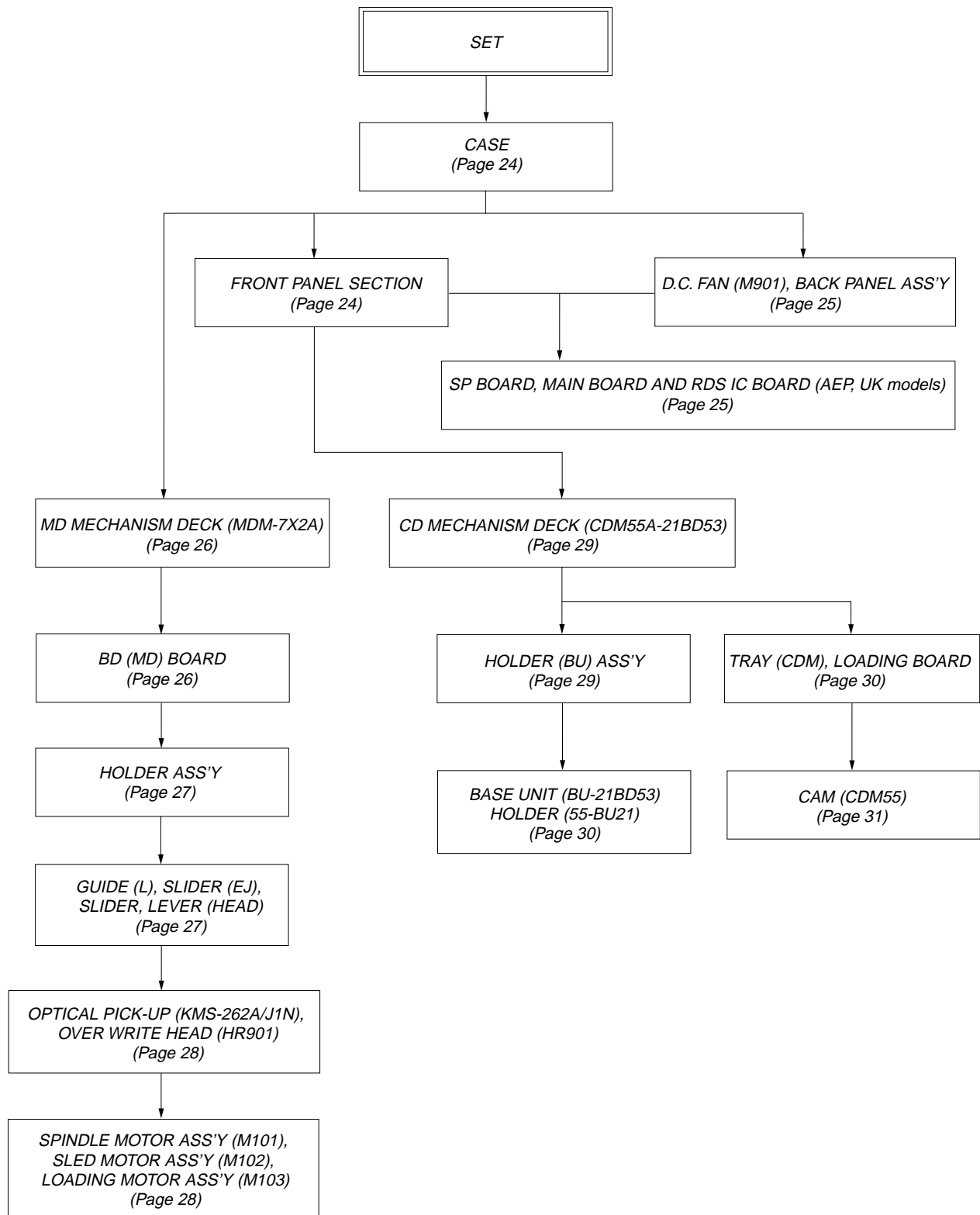
The upper dot of the clock display flashes for the first half of a minute (0 to 29 seconds), and the lower dot flashes for the last half of a minute (30 to 59 seconds).

To change the preset time

- You can change the preset time while the system is off.
- 1 Press CLOCK/TIMER SET.
 - 2 Repeat steps 3 to 5 of "Setting the time".

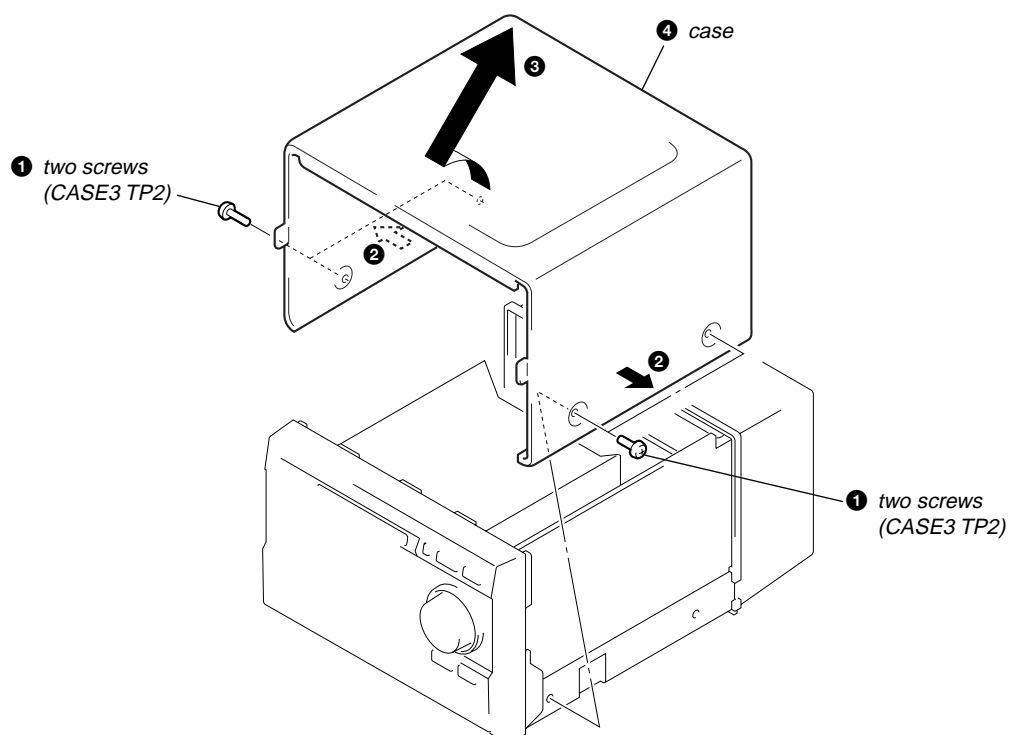
SECTION 3 DISASSEMBLY

- This set can be disassembled in the order shown below.

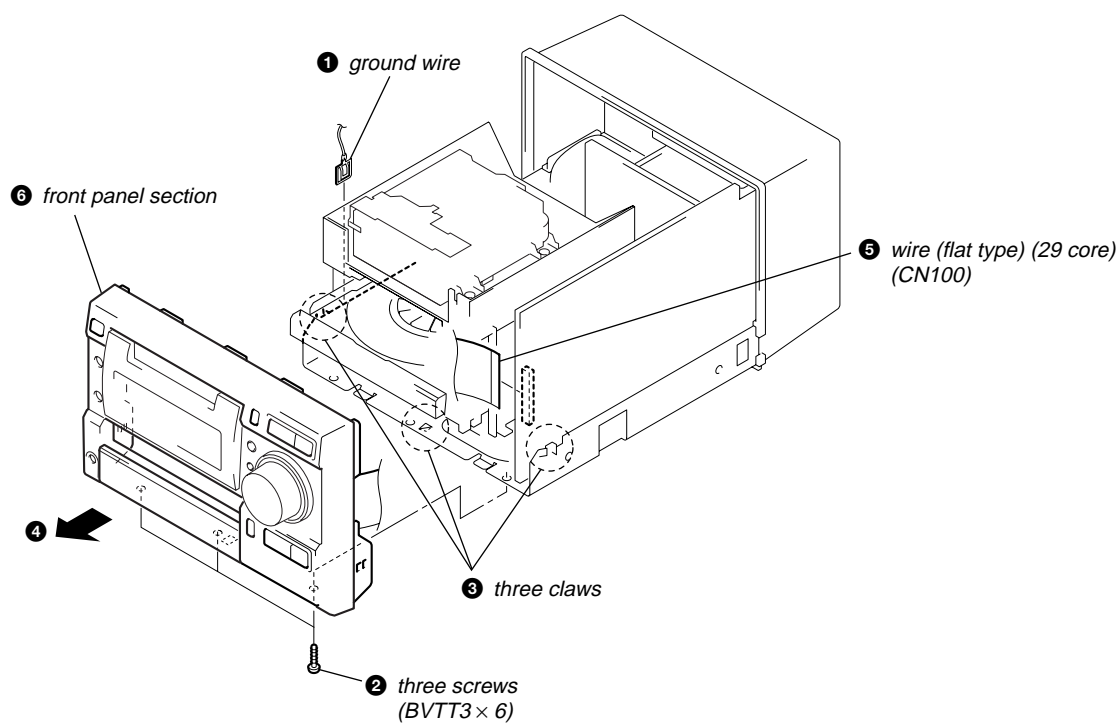


Note: Follow the disassembly procedure in the numerical order given.

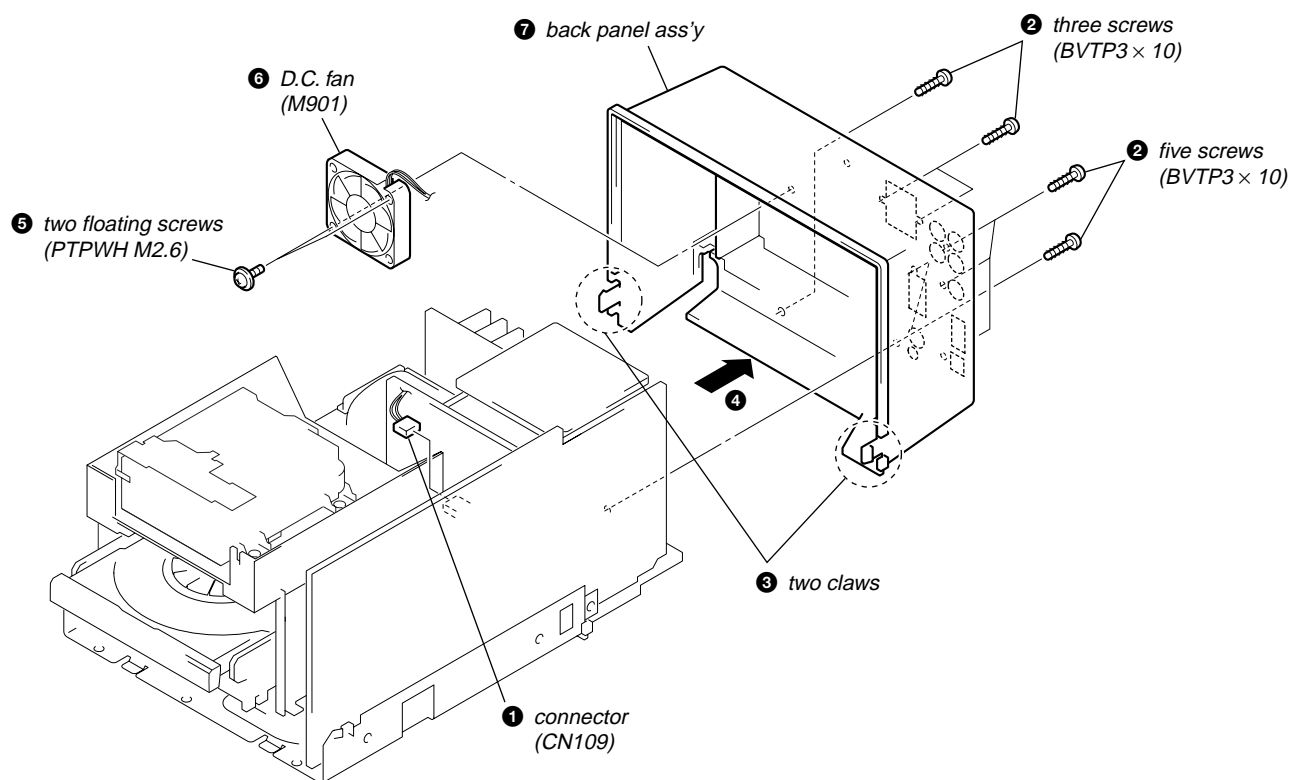
CASE



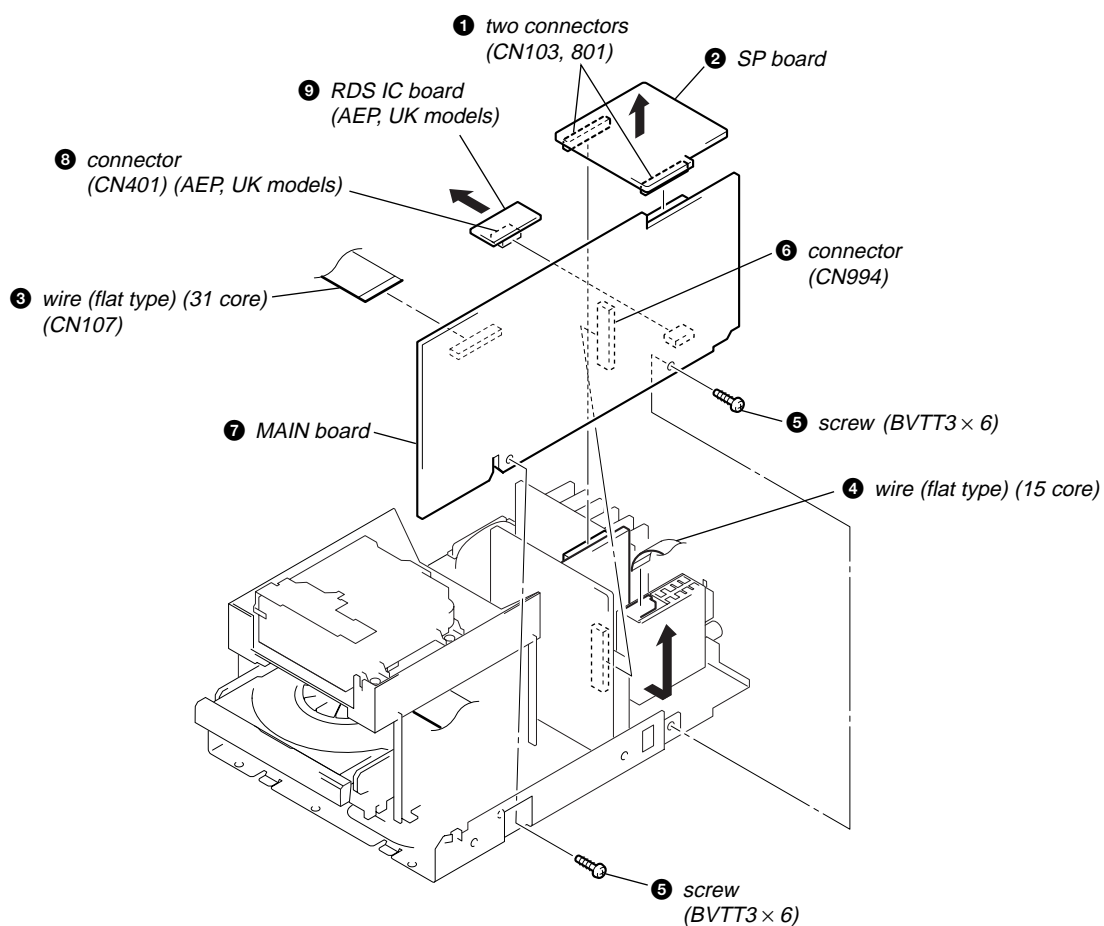
FRONT PANEL SECTION



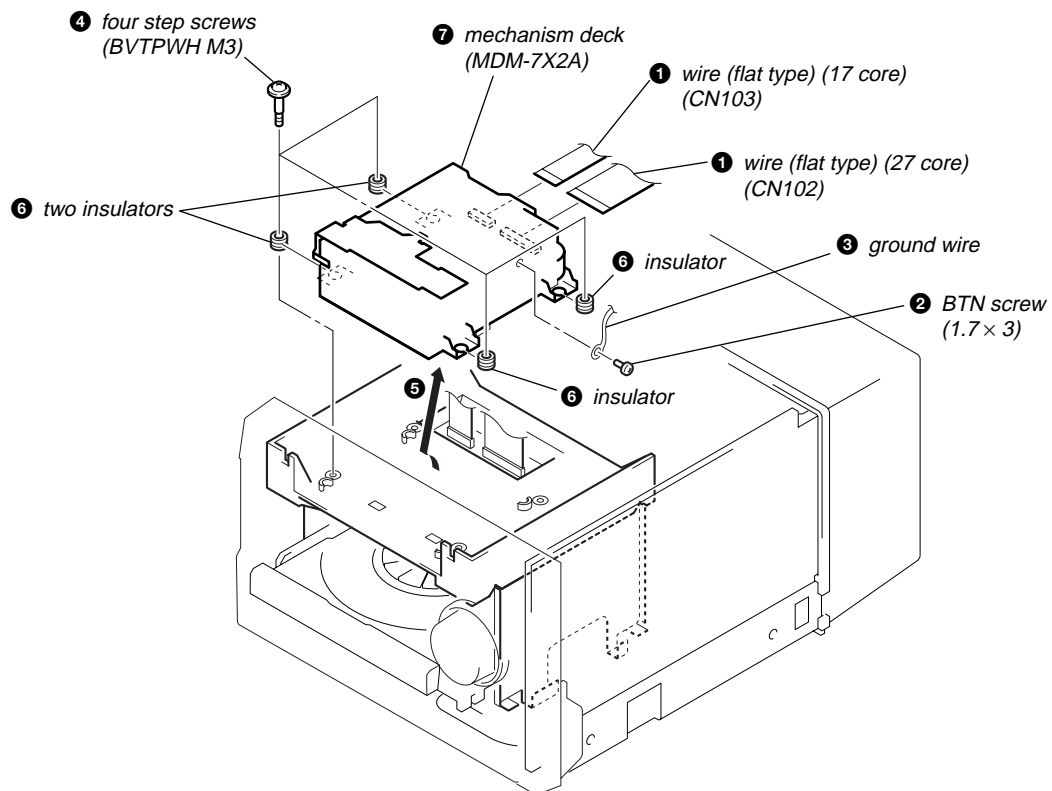
D.C. FAN (M901), BACK PANEL ASS'Y



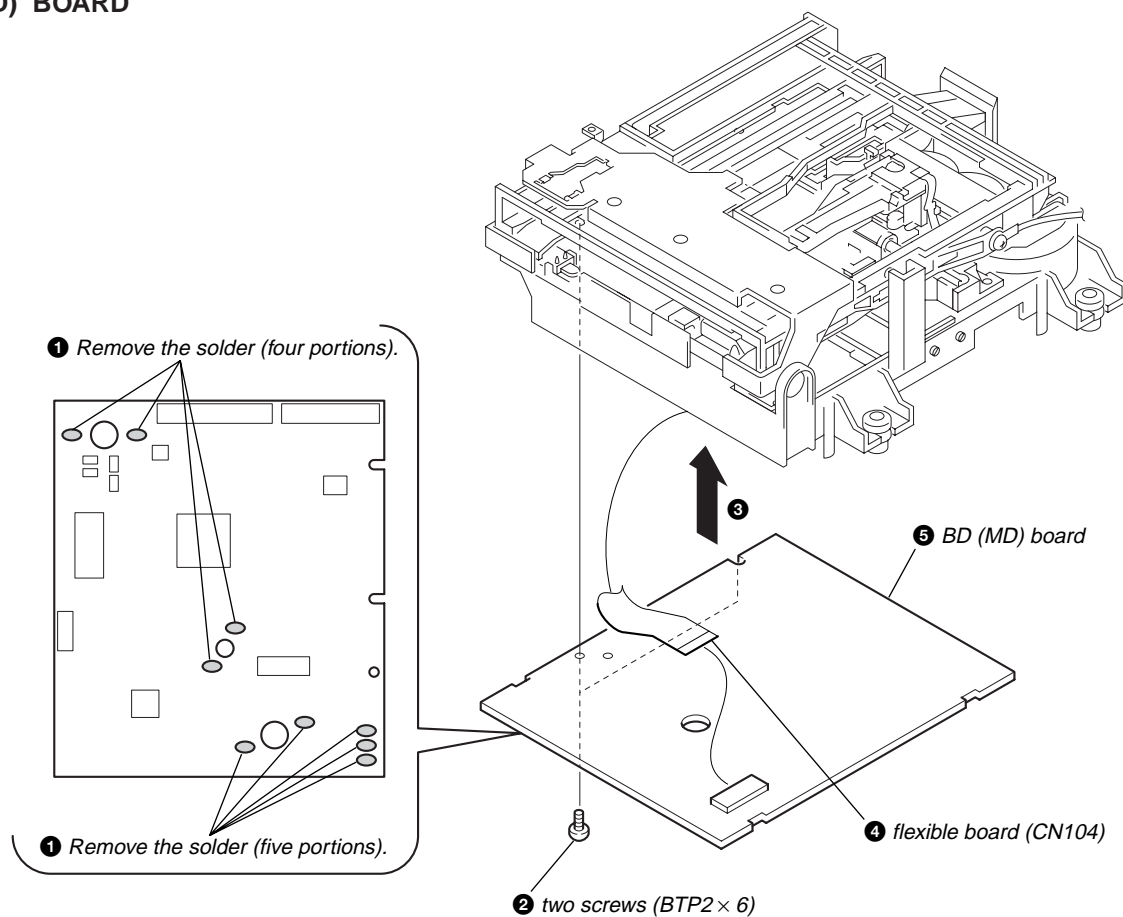
SP BOARD, MAIN BOARD AND RDS IC BOARD (AEP, UK models)



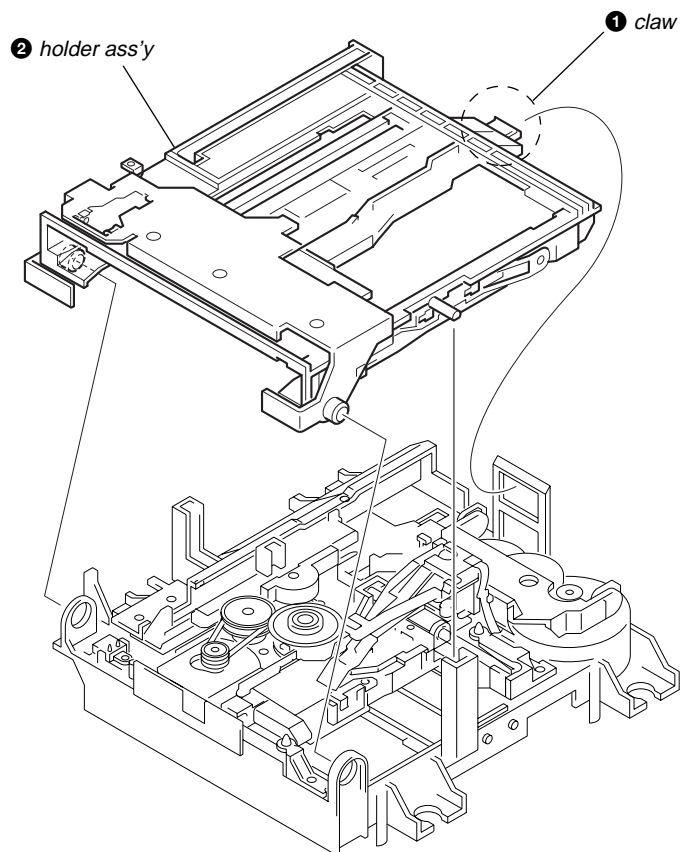
MD MECHANISM DECK (MDM-7X2A)



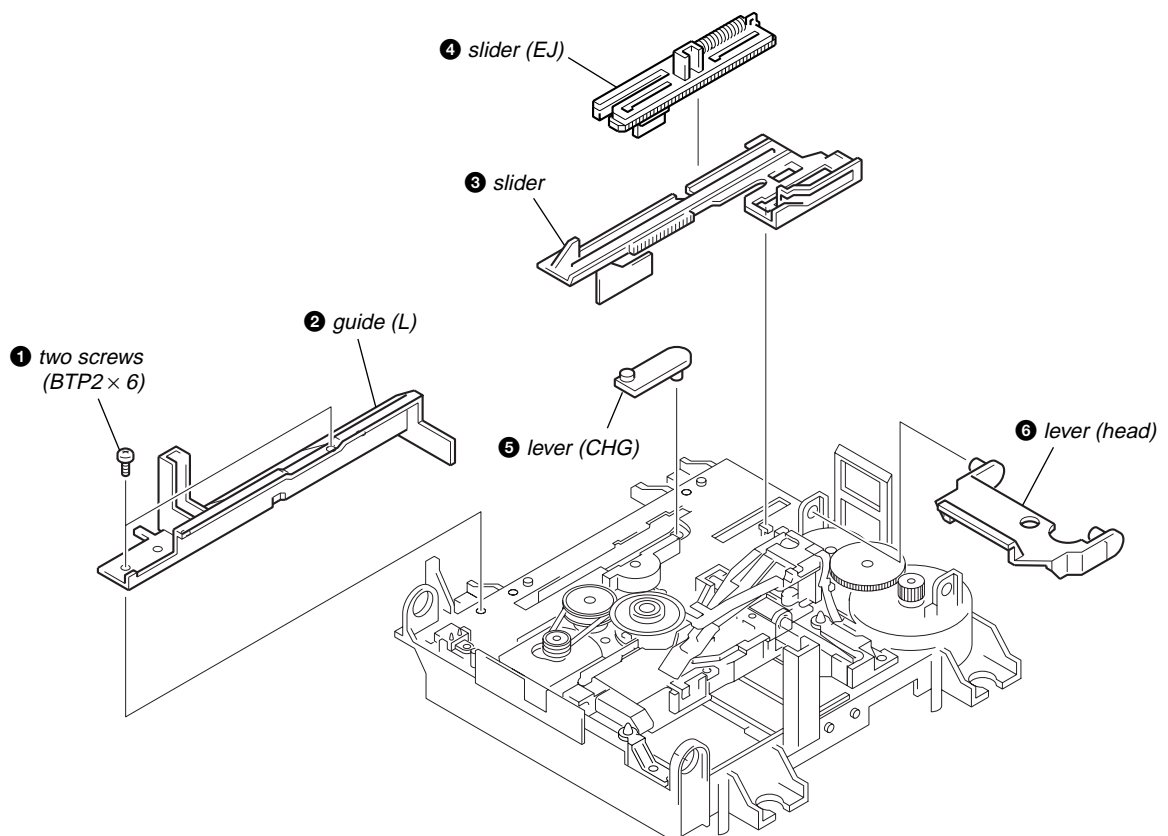
BD (MD) BOARD



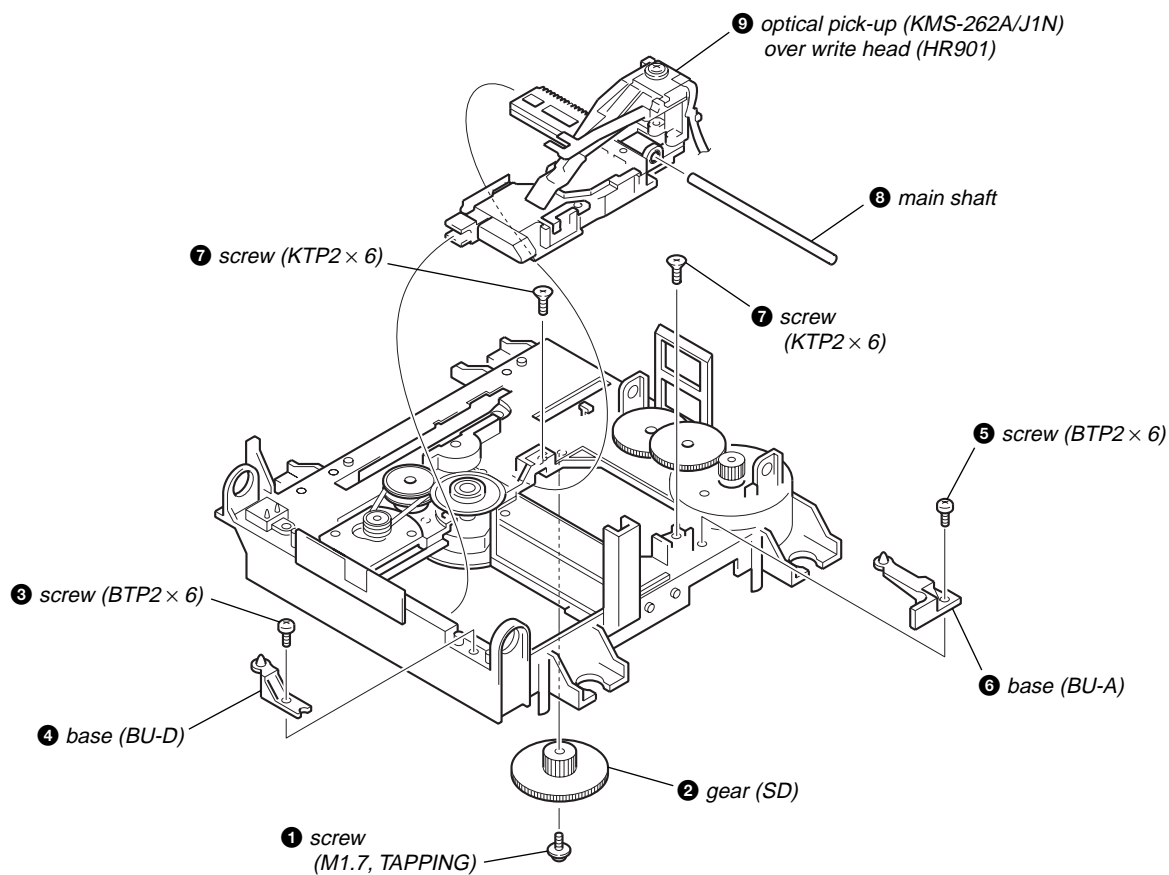
HOLDER ASS'Y



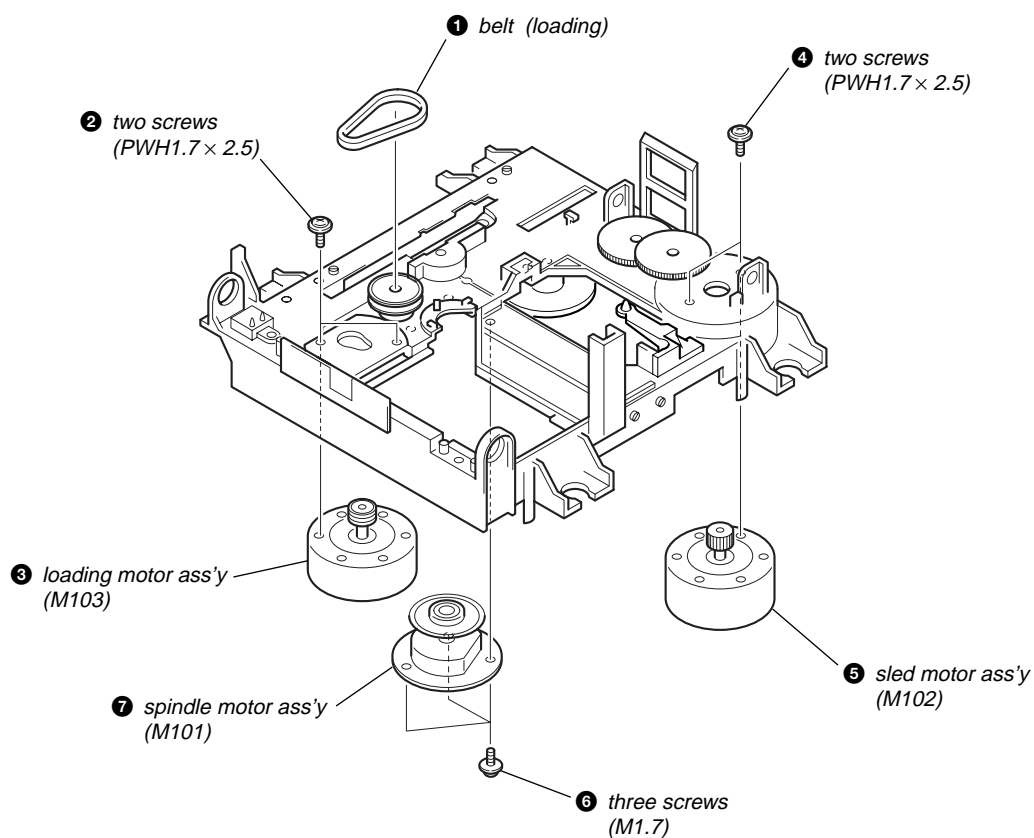
GUIDE (L), SLIDER (EJ), SLIDER, LEVER (HEAD)



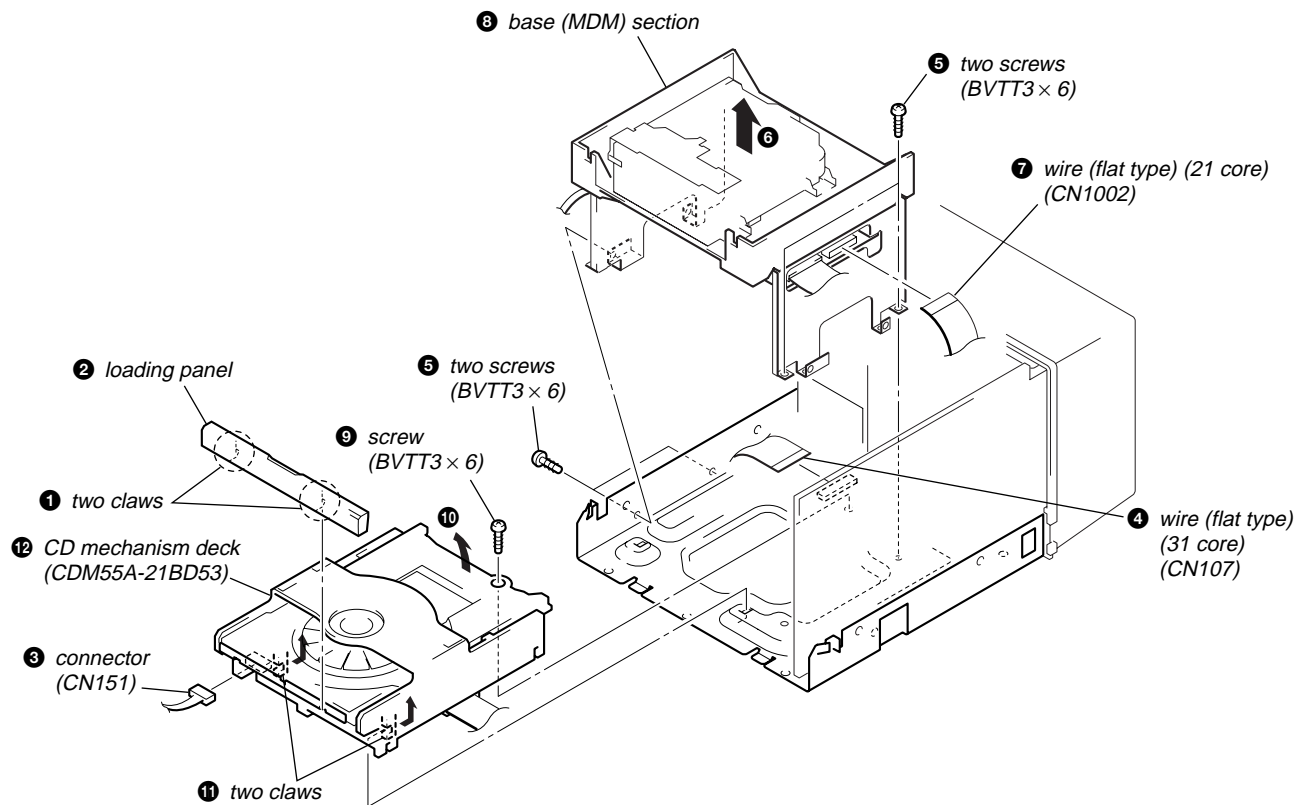
OPTICAL PICK-UP (KMS-262A/J1N), OVER WRITE HEAD (HR901)



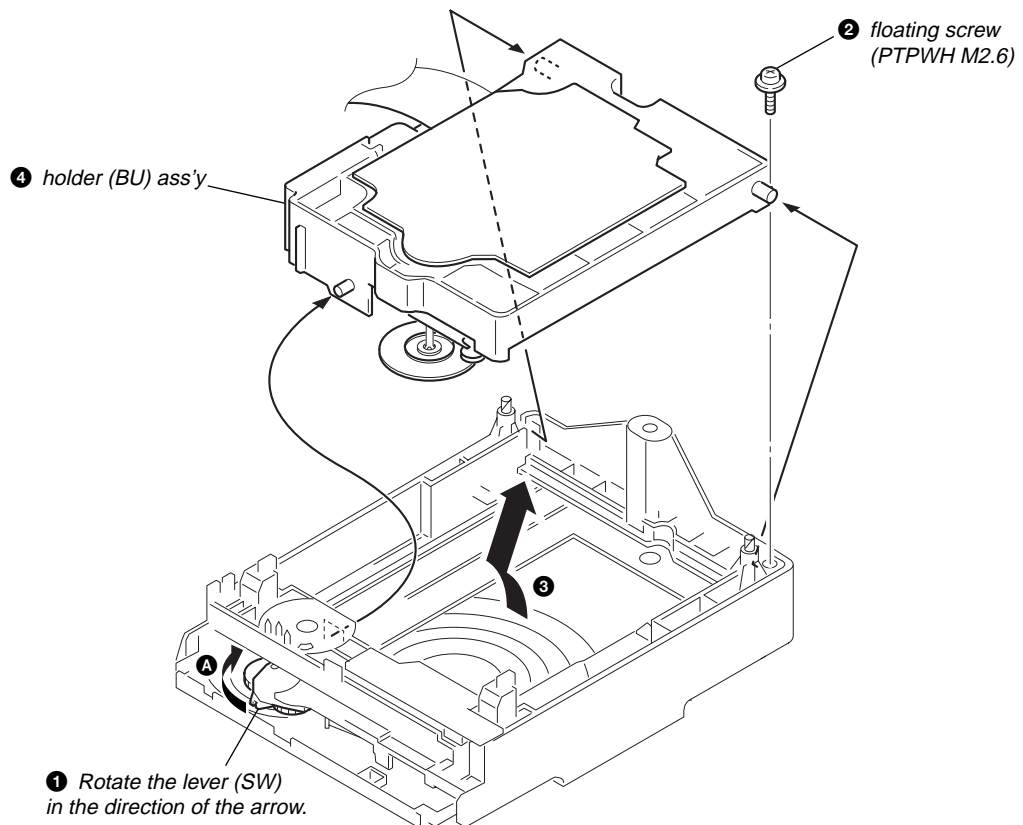
SPINDLE MOTOR ASS'Y (M101), SLED MOTOR ASS'Y (M102), LOADING MOTOR ASS'Y (M103)



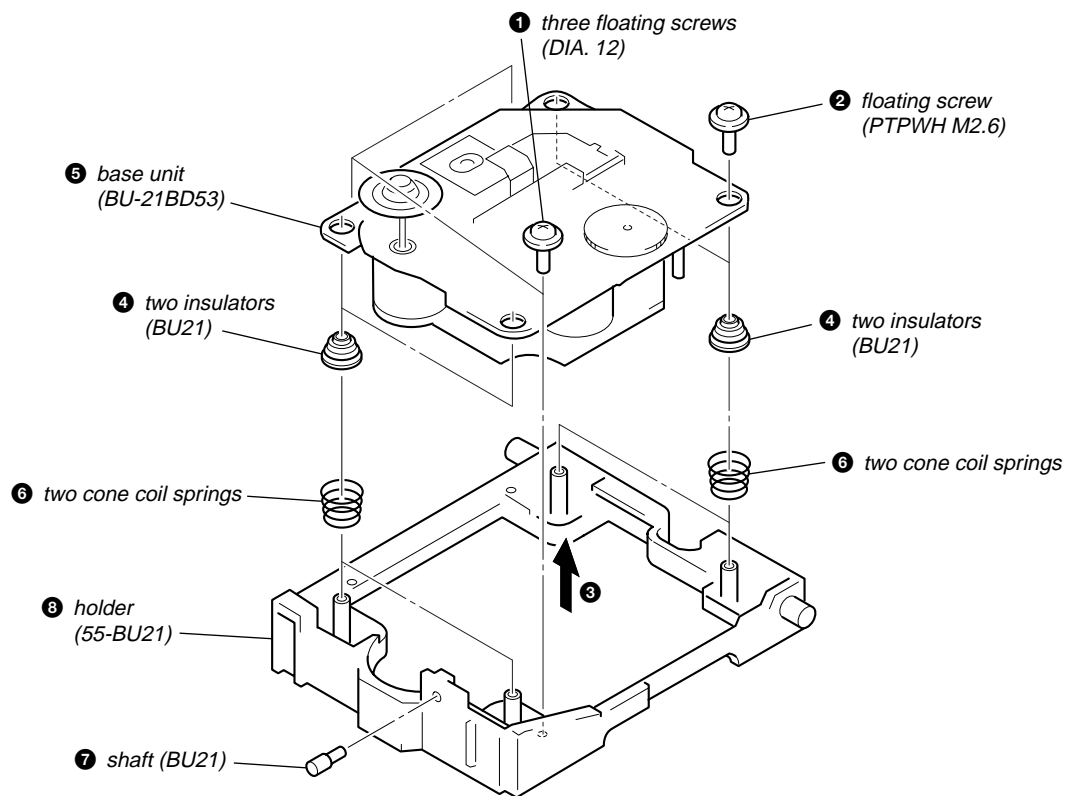
CD MECHANISM DECK (CDM55A-21BD53)



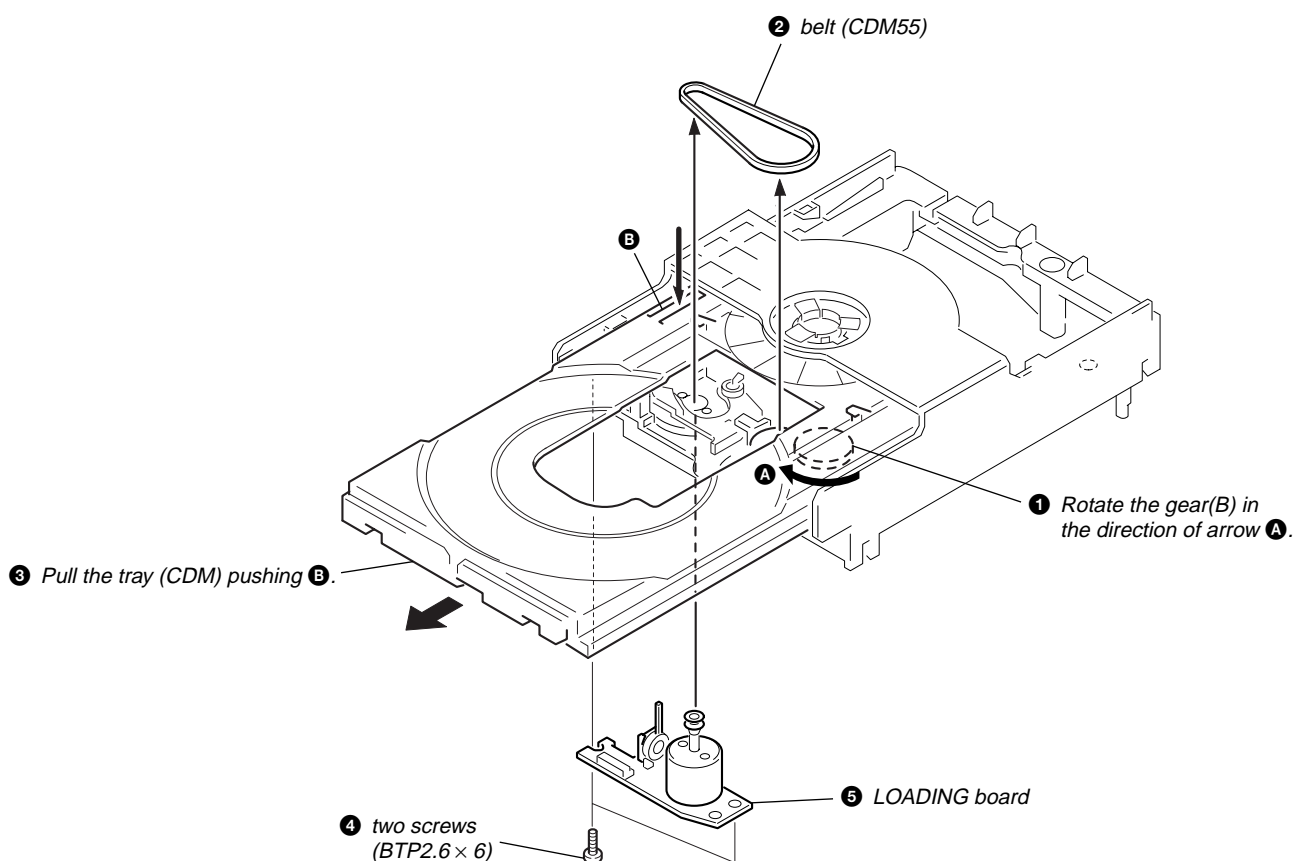
HOLDER (BU) ASS'Y



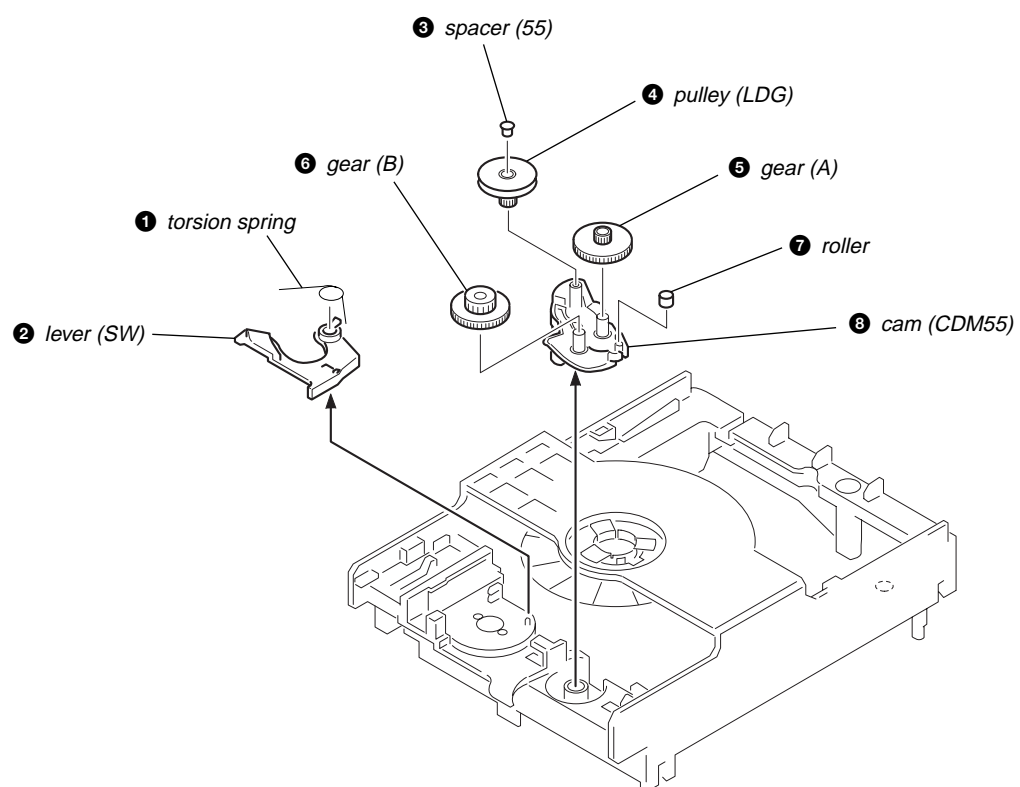
BASE UNIT (BU-21BD53), HOLDER (55-BU21)



TRAY (CDM), LOADING BOARD



CAM (CDM55)



SECTION 4 TEST MODE

MD SECITON

Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-S5EN/provided with unit: 1-476-086-21) buttons. These operations are indicated as “R” in this manual.

Example: [MENU/NO “R”] ...Press the [MENU/NO] button of the remote commander.

Note 2: Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the [I/⏻] button to turn the power off, and retry to enter the MD test mode.

1. PRECAUTIONS FOR USE OF TEST MODE

- As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
Even if the [MD ▲] button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
Therefore, it will be ejected while rotating.
Be sure to press the [MD ▲] button after pressing the [MENU/NO “R”] button and the rotation of disc is stopped.

1-1. Recording laser emission mode and operating buttons

- Continuous recording mode (CREC 2MODE)
- Laser power check mode (LDPWR CHECK)
- Laser power adjustment mode (LDPWR ADJUST)
- Comparison with initial Iop value written in nonvolatile memory (Iop Compare)
- Write current Iop value in read nonvolatile memory using microprocessor (Iop NV Save)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)
- When pressing the [REC/REC IT] button.

2. SETTING THE TEST MODE

The following are two methods of entering the test mode.

Procedure 1: 1. Press the [I/⏻] button to turn the power on.

2. Press the [FUNCTION] button to set the MD function.

3. Press three buttons of [▶▶▶▶], [PLAY MODE], and [MD ▲] simultaneously.

When the test mode is set, “[Check]” will be displayed. Pressing the [◀◀◀◀ “R”] or [▶▶▶▶ “R”] button between the following three groups; ...◀→ [Check] → [Service] → [Develop] →

Procedure 2: 1. Press the [I/⏻] button to turn the power on.

2. Press the [FUNCTION] button to set the MD function.

3. Press three buttons of [◀◀◀◀], [PLAY MODE], and [■] (MD) simultaneously.

When the test mode is set, “TEMP CHECK” (C12) will be displayed. By setting the test mode using this method, only the “Check” group of procedure1 can be executed.

Note: Do not use the test mode in the [Develop] group.

If used, the unit may not operate normally.

If the [Develop] group is set accidentally, press the [MENU/NO “R”] button immediately to exit the [Develop] group.

3. RELEASING THE TEST MODE

Press the [REPEAT] button to display “Initialize”, then release the MD test mode.






4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the [◀◀◀◀ “R”], [▶▶▶▶ “R”], [ENTER/YES “R”] and [MENU/NO “R”].

The functions of these buttons are as follows.

Function name	Function
[◀◀◀◀ “R”], [▶▶▶▶ “R”] buttons	Changes parameters and modes
[ENTER/YES “R”] button	Proceeds onto the next step. Finalizes input
[MENU/NO “R”] button	Returns to previous step. Stops operations

5. SELECTING THE TEST MODE

There are 26 types of test modes as shown below. The groups can be switched by pressing the  or  button. After selecting the group to be used, press the  button. After setting a certain group, pressing the  or  button switches modes shown below.

Refer to “Group” in the table for details can be selected.


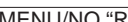
All items used for servicing can be treated using group [Service]. So be carefully not to enter other groups by mistake.

Note: Do not use the test mode in the [Develop] group.

If used, the unit may not operate normally.

If the [Develop] group is set accidentally, press the  button immediately to exit the [Develop] group.

Display	No.	Details	Mark	Group	
				Check	Service
AUTO CHECK	C01	Automatic self-diagnosis			<input type="radio"/>
Err Display	C02	Error history display, clear			<input type="radio"/>
TEMP ADJUST	C03	Temperature compensation offset adjustment			<input type="radio"/>
LDPWR ADJUST	C04	Laser power adjustment			<input type="radio"/>
Iop Write	C05	Iop data writing			<input type="radio"/>
Iop NV Save	C06	Writes current Iop value in read nonvolatile memory using microprocessor			<input type="radio"/>
EF MO ADJUST	C07	Traverse (MO) adjustment			<input type="radio"/>
EF CD ADJUST	C08	Traverse (CD) adjustment			<input type="radio"/>
FBIAS ADJUST	C09	Focus bias adjustment			<input type="radio"/>
AG Set (MO)	C10	Auto gain output level adjustment (MO)			<input type="radio"/>
AG Set (CD)	C11	Auto gain output level adjustment (CD)			<input type="radio"/>
TEMP CHECK	C12	Temperature compensation offset check		<input type="radio"/>	<input type="radio"/>
LDPWR CHECK	C13	Laser power check		<input type="radio"/>	<input type="radio"/>
EF MO CHECK	C14	Traverse (MO) check		<input type="radio"/>	<input type="radio"/>
EF CD CHECK	C15	Traverse (CD) check		<input type="radio"/>	<input type="radio"/>
FBIAS CHECK	C16	Focus bias check		<input type="radio"/>	<input type="radio"/>
ScurveCHECK	C17	S-curve check	×	<input type="radio"/>	
VERIFYMODE	C18	Nonvolatile memory check	×	<input type="radio"/>	
DETRK CHECK	C19	Detrack check	×	<input type="radio"/>	
0920 CHECK	C25	Most circumference check	×	<input type="radio"/>	
Iop Read	C26	Iop data display		<input type="radio"/>	<input type="radio"/>
Iop Compare	C27	Comparison with initial Iop value written in nonvolatile memory		<input type="radio"/>	<input type="radio"/>
ADJ CLEAR	C28	Initialization of nonvolatile memory for adjustment values			<input type="radio"/>
INFORMATION	C31	Display of microprocessor version, etc.		<input type="radio"/>	<input type="radio"/>
CPLAY2MODE	C36	Continuous playback mode		<input type="radio"/>	<input type="radio"/>
CREC 2MODE	C37	Continuous recording mode		<input type="radio"/>	<input type="radio"/>

- For details of each adjustment mode, refer to “5. Electrical Adjustments”.
For details of “Err Display”, refer to “Self-Diagnosis Function” on page 2.
- If a different mode has been selected by mistake, press the  button to release that mode.
- Modes with (×) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the  button to release the mode immediately.

5-1. Operating the Continuous Playback Mode

- Entering the continuous playback mode
 - Set the disc in the unit. (Whichever recordable discs or discs for playback only are available)
 - Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "CPLAY2MODE" (C36).
 - Press the **ENTER/YES "R"** button to change the display to "CPLAY2MID".
 - When access completes, the display changes to "C = 0000 AD = 00".

Note: The numbers "0" displayed show you error rates and ADER.
- Changing the parts to be played back
 - Press the **ENTER/YES "R"** button during continuous playback to change the display as below.

"CPLAY2MID" → "CPLAY2OUT" → "CPLAY2IN"

When pressed another time, the parts to be played back can be moved.

- When access completes, the display changes to "C = 0000 AD = 00".

Note: The numbers "0" displayed show you error rates and ADER.
- Ending the continuous playback mode
 - Press the **MENU/NO "R"** button. The display will change to "CPLAY2MODE" (C36).
 - Press the **MD ▲** button and take out the disc.

Note: The playback start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster

5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/palyback check)

- Entering the continuous recording mode
 - Set a recordable disc in the unit.
 - Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "CREC 2MODE" (C37).
 - Press the **ENTER/YES "R"** button to change the display to "CREC 2MID".
 - When access completes, the display changes to "CREC 2(0000)" and **REC** lights up.

Note: The numbers "0" displayed shows you the recording position addresses.
- Changing the parts to be recorded
 - When the **ENTER/YES "R"** button is pressed during continuous recording, the display changes as below.

"CREC 2MID" → "CREC 2OUT" → "CREC 2IN"

When pressed another time, the parts to be recorded can be changed. **REC** goes off.

- When access completes, the display changes to "CREC 2(0000)" and **REC** lights up.

Note: The numbers "0" displayed shows you the recording position addresses.
- Ending the continuous recording mode
 - Press the **MENU/NO "R"** button. The display changes to "CREC 2MODE" (C37) and **REC** goes off.
 - Press the **MD ▲** button and take out the disc.

Note 1: The recording start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster

Note 2: The **MENU/NO "R"** button can be used to stop recording anytime.

Note 3: Do not perform continuous recording for long periods of time above 5 minutes.

Note 4: During continuous recording, be careful not to apply vibration.

6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
▶ II (MD)	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF
■ (MD)	Stops continuous playback and continuous recording
▶▶ "R"	The sled moves to the outer circumference only when this is pressed
◀◀ "R"	The sled moves to the inner circumference only when this is pressed
CD-MD SYNC HIGH	Switches between the pit and groove modes when pressed
PLAY MODE	Switches the spindle servo mode (CLV S ↔ CLV A)
CD-MD SYNC HIGH (*1)	Switches the displayed contents each time the button is pressed
MD ▲	Ejects the disc
REPEAT	Releases the test mode

*1) Press the **CD-MD SYNC NORMAL** button to light up "IT" indicator, then press the **CD-MD SYNC HIGH** button.

7. TEST MODE DISPLAYS

Each time the **CD-MD SYNC HIGH** button is pressed, the display changes in the following order.

When CPLAY or CREC are started, the display will forcibly be switched to the error rate display as the initial mode.

1. Mode display

Displays “TEMP ADJUST” (C03), “CPLAY2MODE” (C36), etc.

2. Error rate display

Displays the error rate in the following way.

C = 0000 AD = 00

C = : Indicates the C1 error.

AD = : Indicates ADER.

3. Address display

The address is displayed as follows. (MO: recordable disc, CD: playback only disc)

h = 0000 s = 0000 (MO pit and CD)

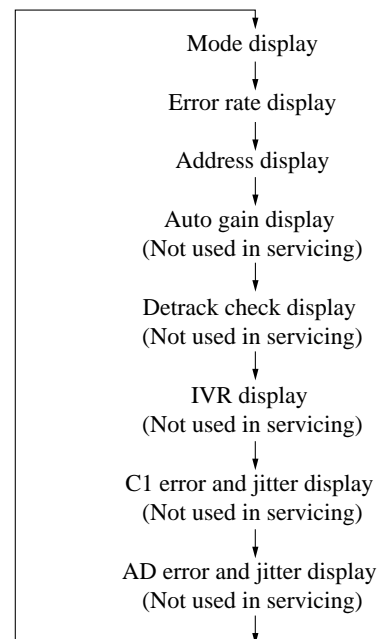
h = 0000 a = 0000 (MO groove)

h = : Indicates the header address.

s = : Indicates the SUBQ address.

a = : Indicates the ADIP address.

Note: “—” is displayed when servo is not imposed.



MEANINGS OF OTHER DISPLAYS

Display	Contents	
	When Lit	When Off
2	Servo ON	Servo OFF
4	Tracking servo OFF	Tracking servo ON
REC	Recording mode ON	Recording mode OFF
SYNC, TRACK	CLV low speed mode	CLV normal mode
L.SYNC	ABCD adjustment completed	
PROGRAM	Tracking offset cancel ON	Tracking offset cancel OFF
TOC	Tracking auto gain OK	
REPEAT	Focus auto gain OK	
SF EDIT	Pit	Groove
DISC	High reflection	Low reflection
NORM	CLV S	CLV A
MONO	CLV LOCK	CLV UNLOCK






8. AUTOMATIC SELF-DIAGNOSIS FUNCTION

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up.

To perform this test mode, the laser power must first be checked.

Perform AUTO CHECK after the laser power check and Iop Compare.

Procedure:

1. Press the   "R" or   "R" button to display "AUTO CHECK" (C01).
2. Press the  "R" button. If "LDPWR ミチェック" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop Compare, and then repeat from enter the MD test mode.
3. If a disc is in the mechanical deck, it will be ejected forcibly.
"DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
4. If a disc is loaded at step 3, the check will start automatically.
5. When "XX CHECK" is displayed, the item corresponding to XX will be performed.
When "06 CHECK" completes, the disc loaded at step 3 will be ejected. "DISC IN" will be displayed. Load the check disc (TDYS-1).
6. When the disc is loaded in step 5, the check will automatically be resumed from "07 CHECK".
7. After completing to test item 12, check OK or NG will be displayed. If all items are OK, "CHECK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".







When "CHECK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of other parts (spindle motor, sled motor, etc.).

When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

9. INFORMATION

Display the software version.

Procedure:

1. Press the   "R" or   "R" button to display "INFORMATION" (C31).
2. Press the  "R" button.
3. The software version will be displayed.
4. Press the  "R" button to end this mode.

SECTION 5 ELECTRICAL ADJUSTMENTS

MD SECTION

Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-S5EN/provided with unit: 1-476-086-21) buttons. These operations are indicated as “R” in this manual.

Example: **MENU/NO “R”** ...Press the **MENU/NO** button of the remote commander.

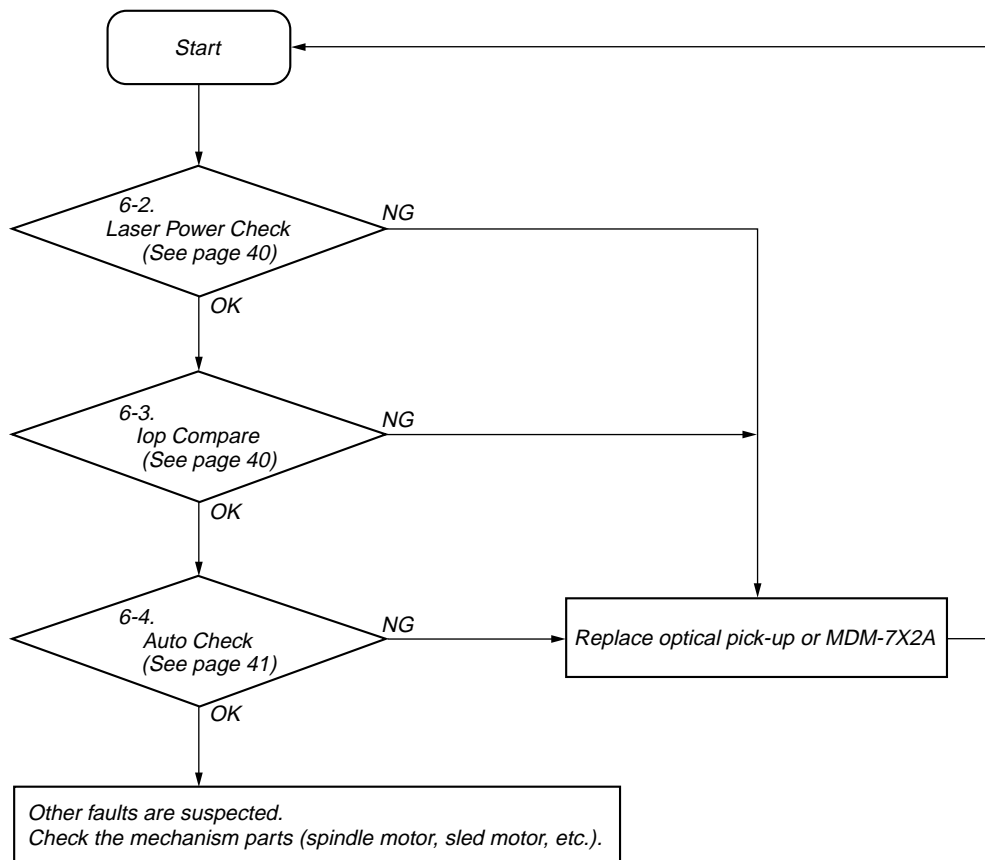
Note 2: Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the **I/⏻** button to turn the power off, and retry to enter the MD test mode.

1. PARTS REPLACEMENT AND ADJUSTMENT

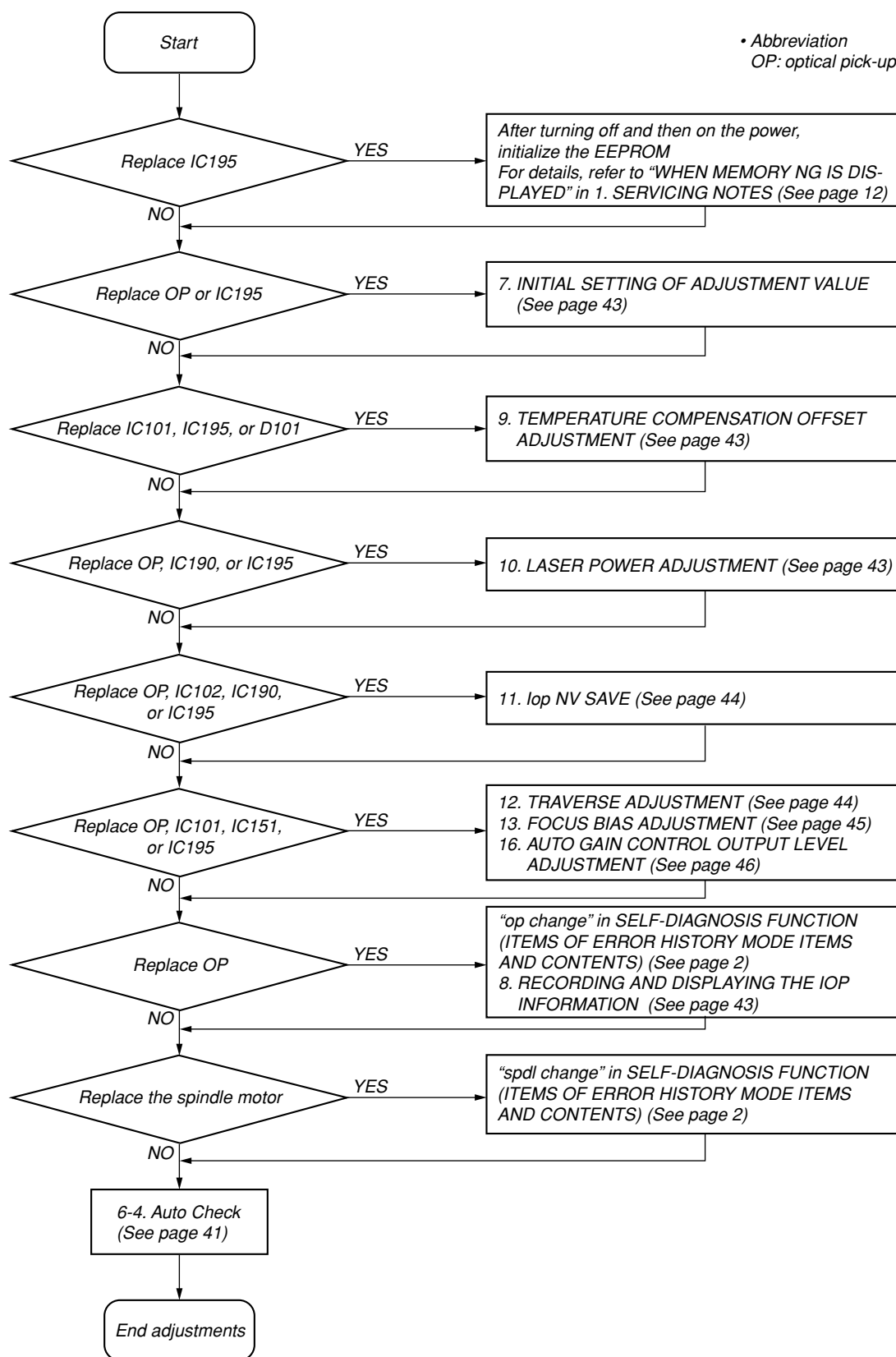
If malfunctions caused by optical pick-up such as sound skipping are suspected, follow the following check.

Check before replacement



Adjustment flow

• Abbreviation
OP: optical pick-up

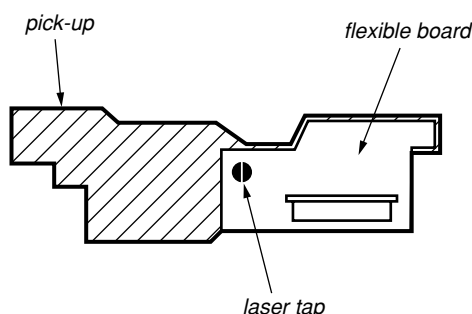


2. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

3. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-262A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

4. PRECAUTIONS FOR ADJUSTMENTS

- When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.
- Set the MD test mode when performing adjustments. After completing the adjustments, exit the MD test mode. Perform the adjustments and checks in “Group Service” of the MD test mode.
- Perform the adjustments to be needed in the order shown.
- Use the following tools and measuring devices.
 - Extension jig (27 core) (Part No. : J-2501-100-A)
CN102 on the BD (MD) board to CN1003 on the MD DIGITAL board
 - Extension jig (17 core) (Part No. : J-2501-198-A)
CN103 on the BD (MD) board to CN1004 on the MD DIGITAL board
 - Check Disc (TDYS-1) (Part No. : 4-963-646-01)
 - Test Disk (MDW-74/GA-1) (Part No. : 4-229-747-01)
 - Laser power meter LPM-8001 (Part No. : J-2501-046-A)
or
MD Laser power meter 8010S (Part No. : J-2501-145-A)*1

- Oscilloscope (Measure after performing CAL of prove.)
- Digital voltmeter
- Thermometer
- Jig for checking BD (MD) board waveform (Part No. : J-2501-196-A)

- When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
(VC and ground will become short-circuited.)
- Using the above jig enables the waveform to be checked without the need to solder.
(Refer to Servicing Notes on page 11.)
- As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

*1 Laser power meter

When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (Part No. J-2501-145-A) instead of the conventional laser power meter is convenient.

It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of optical pick-up.

Adjustment	Parts to be replaced						
	Optical Pick-up	IC101	IC102	IC151	IC190	IC195	D101
7. Initial setting of adjustment value	○	×	×	×	×	○	×
8. Recording of Iop information	○	×	×	×	×	○	×
9. Temperature compensation offset adjustment	×	○	×	×	×	○	○
10. Laser power adjustment	○	×	×	×	○	○	×
11. Iop NV Save	○	×	○	×	○	○	×
12. Traverse adjustment	○	○	×	○	×	○	×
13. Focus bias adjustment	○	○	×	○	×	○	×
16. Auto gain adjustment	○	○	×	○	×	○	×
6-4. AUTO CHECK	○	○	×	○	○	○	×

5. USING THE CONTINUOUSLY RECORDED DISC

* This disc is used in focus bias adjustment and error rate check.
The following describes how to create a continuous recording disc.

1. Insert a disc (blank disc) commercially available.
2. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button and display "CREC 2MODE" (C37).
3. Press the **ENTER/YES "R"** button again to display "CREC 2 MID".
Display "CREC 2(0300)" and start to recording.
4. Complete recording within 5 minutes.
5. Press the **MENU/NO "R"** button and stop recording .
6. Press the **MD** button and remove the disc.

The above has been how to create a continuous recorded data for the focus bias adjustment and error rate check.

Note: Be careful not to apply vibration during continuous recording.

6. CHECKS PRIOR TO REPAIRS

These checks are performed before replacing parts according to "approximate specifications" to determine the faulty locations. For details, refer to "Checks Prior to Parts Replacement and Adjustments in MD" (see page 13).

6-1. Temperature Compensation Offset Check

When performing adjustments, set the internal temperature and room temperature to 22 to 28°C.

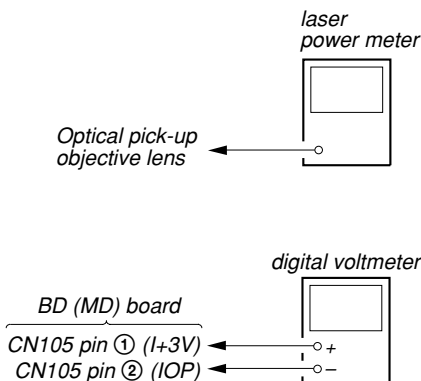
Procedure:

1. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "TEMP CHECK" (C12).
2. Press the **ENTER/YES "R"** button.
3. "T=@ @ (##) [OK]" should be displayed. If "T=@ @ (##) [NG]" is displayed, it means that the results are bad.
(@ @ indicates the current value set, and ## indicates the value written in the non-volatile memory.)

6-2. Laser Power Check

Before checking, check the Iop value of the optical pick-up.
(Refer to 8. Recording and Displaying the Iop Information (see page 43))

Connection:



Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **◀◀ "R"** button or **▶▶ "R"** button to move the optical pick-up.)
Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (IOP).
2. Then, press the **◀◀◀ "R"** or **▶▶▶ "R"** button and display "LDPWR CHECK" (C13).
3. Press the **ENTER/YES "R"** button once and display "LD 0.9mW\$". Check that the reading of the laser power meter become 0.84 to 0.92 mW.
4. Press the **ENTER/YES "R"** button once more and display "LD 7.0mW\$". Check that the reading of the laser power meter and digital volt meter satisfy the specified value.

Specified Value:

Laser power meter reading : 7.0 ± 0.2 mW

Digital voltmeter reading : Optical pick-up displayed value $\pm 10\%$

(Optical pick-up label)

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(For details of the method for checking this value, refer to "8. Recording and Displaying the Iop Information")

IOP=82.5 mA in this case

$IOP (mA) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

5. Press the **MENU/NO "R"** button and display "LDPWR CHECK" (C13) and stop the laser emission.
(The **MENU/NO "R"** button is effective at all times to stop the laser emission.)

Note: After step 4, each time the **ENTER/YES "R"** button is pressed, the display will be switched between "LD 0.7W\$", "LD 7.5mW\$", and "LD Wpホセイ\$". Nothing needs to be performed here.

Checking Location: BD (MD) board (see page 47)

6-3. Iop Compare

The current Iop value at laser power 7.0 mW output and reference Iop value (set at shipment) written in the nonvolatile memory are compared, and the rate of increase/decrease will be displayed in percentage.

Note: Perform this function with the optical pick-up set at room temperature.

Procedure:

1. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "Iop Compare" (C27).
2. Press the **ENTER/YES "R"** button and start measurements.
3. When measurements complete, the display changes to " $\pm xx\%$ yy".
xx is the percentage of increase/decrease, and OK or NG is displayed at yy to indicate whether the percentage of increase/decrease is within the allowable range.
4. Press the **MENU/NO "R"** button to end.

6-4. Auto Check

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up. To perform this test mode, the laser power must first be checked. Perform Auto Check after the laser power check and Iop compare.

Procedure:

1. Press the or "R" button to display "AUTO CHECK" (C01).
2. Press the button. If "LDPWR ミチエック" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop Compare, and then repeat from enter the MD test mode.
3. If a disc is in the mechanical deck, it will be ejected forcibly. "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
4. If a disc is loaded at step 3, the check will start automatically.
5. When "XX CHECK" is displayed, the item corresponding to XX will be performed.
When "06 CHECK" completes, the disc loaded at step 3 will be ejected. "DISC IN" will be displayed. Load the check disc (TDYS-1).
6. When the disc is loaded in the step 5, the check will automatically be resumed from "07 CHECK".
7. After completing to test item 12, check OK or NG will be displayed. If all items are OK, "CHECK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHECK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of other parts (spindle motor, sled motor, etc.).

When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

6-5. Other Checks

All the following checks are performed by the Auto Check mode. They therefore need not be performed in normal operation.

6-6. Traverse Check

6-7. Focus Bias Check

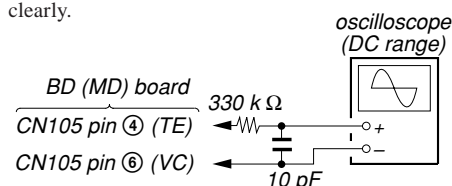
6-8. C PLAY Check

6-9. Self-Recording/Playback Check

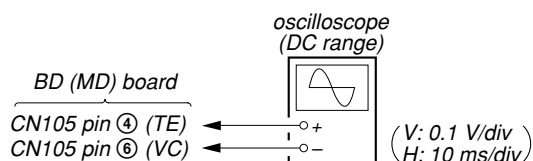
6-6. Traverse Check

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



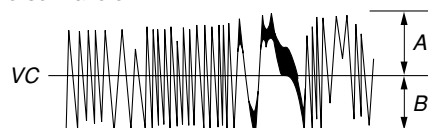
Connection:



Procedure:

1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) on the BD (MD) board.
2. Load a disc (any available on the market). (Refer to Note 1)
3. Press the "R" button to move the optical pick-up outside the pit.
4. Press the or "R" button to display "EF MO CHECK" (C14).
5. Press the button to display "EFB = MO-R".
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the "R" or "R" button.
(Read power traverse checking)

Traverse Waveform

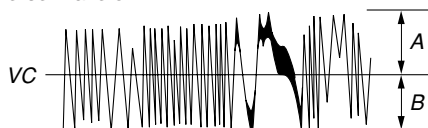


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

7. Press the button to display "EFB = MO-W".
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the "R" or "R" button.
(Write power traverse checking)

Traverse Waveform

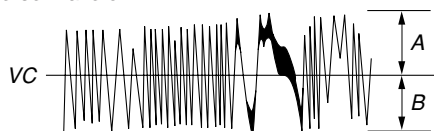


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

9. Press the **[ENTER/YES "R"]** button to display "EFB = **00** MO-P".
Then, the optical pick-up moves to the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **[◀◀ "R"]** or **[▶▶ "R"]** button.

Traverse Waveform

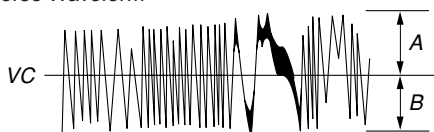


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

11. Press the **[ENTER/YES "R"]** button to display "EF MO CHECK" (C14).
The disc stops rotating automatically.
12. Press the **[MD ▲]** button and take out the disc.
13. Load the check disc (TDYS-1).
14. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button and display "EF CD CHECK" (C15).
15. Press the **[ENTER/YES "R"]** button to display "EFB = **00** CD".
Servo is imposed automatically.
16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **[◀◀ "R"]** or **[▶▶ "R"]** button.

Traverse Waveform



Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

17. Press the **[ENTER/YES "R"]** button to display "EF CD CHECK" (C15).
18. Press the **[MD ▲]** button and take out the check disc (TDYS-1).

Checking Location: BD (MD) board (see page 47)

6-7. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

Procedure:

1. Load the test disc (MDW-74/GA-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY2MODE" (C36).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY2MID".
4. Press the **[MENU/NO "R"]** button when "C = **0000** AD = **00**" is displayed.
5. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "FBIAS CHECK" (C16).
6. Press the **[ENTER/YES "R"]** button to display "**0000/00** c = **00**".
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.
Check that the C1 error is below 20 and ADER is below 2.
7. Press the **[ENTER/YES "R"]** button to display "**0000/00** b = **00**".
Check that the C1 error is about 200 and ADER is below 2.
8. Press the **[ENTER/YES "R"]** button to display "**0000/00** a = **00**".
Check that the C1 error is about 200 and ADER is below 2.
9. Press the **[MENU/NO "R"]** button, then press the **[MD ▲]** button and take out the test disc.

6-8. C PLAY Check

MO Error Rate Check

Procedure:

1. Load the test disc (MDW-74/GA-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY2MODE" (C36).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY2MID".
4. The display changes to "C = **0000** AD = **00**".
5. If the C1 error rate is below 20, check that ADER is 00.
6. Press the **[MENU/NO "R"]** button to stop playback, then press the **[MD ▲]** button and take out the test disc.

CD Error Rate Check

Procedure:

1. Load the check disc (TDYS-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY2MODE" (C36).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY2MID".
4. The display changes to "C = **0000** AD = **00**".
5. Check that the C1 error rate is below 20.
6. Press the **[MENU/NO "R"]** button to stop playback, then press the **[MD ▲]** button and take out the check disc.

6-9. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

Procedure:

1. Load a recordable disc (blank disc).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CREC 2MODE" (C37).
3. Press the **[ENTER/YES "R"]** button to display "CREC 2MID".
4. When recording starts, lights up "**REC**" and display "CREC 2 @@@@@" (@@@@ is the address).
5. About 1 minute later, press the **[MENU/NO "R"]** button to stop continuous recording.
6. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY2MODE" (C36).
7. Press the **[ENTER/YES "R"]** button to display "CPLAY2 MID".
8. "C = **0000** AD = **00**" will be displayed.
9. Check that the C1 error becomes below 20 and the AD error below 2.
10. Press the **[MENU/NO "R"]** button to stop playback, then press the **[MD ▲]** button and take out the disc.

7. INITIAL SETTING OF ADJUSTMENT VALUE

Note:

Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.

If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.

For details of the initial setting, refer to "4. Precautions for Adjustments" (See page 39) and execute the initial setting before the adjustment as required.

Procedure:

1. Press the or button to display "ADJ CLEAR" (C28).
2. Press the button. "Complete!" will be displayed momentarily and initial setting will be executed, after which "ADJ CLEAR" (C28) will be displayed.

8. RECORDING AND DISPLAYING THE IOP INFORMATION

The IOP data can be recorded in the non-volatile memory. The IOP value on the optical pick-up label and the IOP value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

Recording Procedure:

1. Press the or button to display "Iop Write" (C05), and press the button.
2. The display becomes "Ref=@ @ @ .@" (@ is an arbitrary number) and the numbers which can be changed will blink.
3. Input the IOP value on the optical pick-up label.
To select the number : Press the or button.
To select the digit : Press the button.
4. When the button is pressed, the display becomes "Measu=@ @ @ .@" (@ is an arbitrary number).
5. As the adjustment results are recorded for the step 4 value. Leave it as it is and press the button.
6. "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write" (C05).

Display Procedure:

1. Press the or button to display "Iop Read" (C26).
2. "@ @ @ .@/##.@" is displayed and the recorded contents are displayed.
@ @ @ .@ indicates the IOP value on the optical pick-up label.
##.## indicates the IOP value after adjustment
3. To end, press the button to display "Iop Read" (C26).

9. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

Note:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Procedure:

1. Press the or button to display "TEMP ADJUST" (C03).
2. Press the button to select the "TEMP ADJUST" mode.
3. "TEMP = [] [OK]" and the current temperature data will be displayed.
4. To save the data, press the button. When not saving the data, press the button.
5. When the button is pressed, "TEMP = [] SAVE" will be displayed and turned back to "TEMP ADJUST" (C03) display then. When the button is pressed, "TEMP ADJUST" (C03) will be displayed immediately.

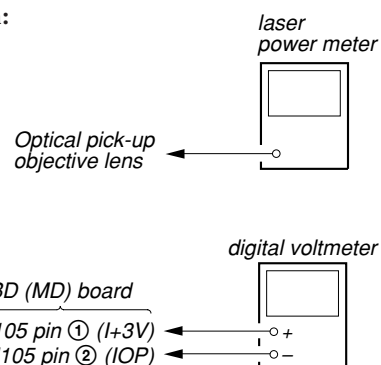
Specified Value:

The "TEMP = []" should be within "E0 - EF", "F0 - FF", "00 - 0F", "10 - 1F" and "20 - 2F".

10. LASER POWER ADJUSTMENT

Check the IOP value of the optical pick-up before adjustments. (Refer to 8. Recording and Displaying the Iop Information)

Connection:



Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the or button to move the optical pick-up)
Connect the digital voltmeter to CN105 pin ① (I+3V) and CN105pin ② (IOP) on the BD (MD) board.
2. Press the or button to display "LDPWR ADJUST" (C04).
(Laser power : For adjustment)
3. Press the button once to display "LD 0.9 mW \$ []".
4. Press the or button so that the reading of the laser power meter becomes 0.85 to 0.91 mW. Press the button after setting the range knob of the laser power meter, and save the adjustment results. ("LD SAVE \$ []" will be displayed for a moment)
5. Then "LD 7.0 mW \$ []" will be displayed.

- Press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the \rightarrow "R" button to save it.

Note: Do not perform the emission with 7.0 mW more than 15 seconds continuously.

- Then, press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button to display "LDPWR CHECK" (C13).
- Press the \rightarrow "R" button once to display "LD 0.9mW\$ $\square\square\square$ ". Check that the reading of the laser power meter become 0.85 to 0.91 mW.
- Press the \rightarrow "R" button once more to display "LD 7.0mW\$ $\square\square\square$ ". Check that the reading the laser power meter and digital voltmeter satisfy the specified value.
Note down the digital voltmeter reading value.

Specified Value:

Laser power meter reading: 7.0 ± 0.2 mW

Digital voltmeter reading : Value on the optical pick-up label $\pm 10\%$

(Optical pick-up label)

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IOP=82.5 mA in this case

$IOP (mA) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

(For details of the method for checking this value, refer to "8. Recording and Displaying the Iop Information")

- Press the \rightarrow "R" button to display "LDPWR CHECK" (C13) and stop the laser emission.
(The \rightarrow "R" button is effective at all times to stop the laser emission)
- Press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button to display "Iop Write" (C05).
- Press the \rightarrow "R" button. When the display becomes Ref=@@.@ (@ is an arbitrary number), press the \rightarrow "R" button to display "Measu=@@.@@" (@ is an arbitrary number).
- The numbers which can be changed will blink. Input the Iop value noted down at step 9.
To select the number : Press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button.
To select the digit : Press the \rightarrow "R" button.
- When the \rightarrow "R" button is pressed, "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write" (C05).

Note: After step 4, each time the \rightarrow "R" button is pressed, the display will be switched "LD 0.7mW\$ $\square\square\square$ ", "LD 7.5mW\$ $\square\square\square$ ", and "LD Wpホセイ\$ $\square\square\square$ ". Nothing needs to be performed here.

Adjustment Location: BD (MD) board (see page 47)

11. Iop NV SAVE

Write the reference values in the nonvolatile memory to perform "Iop compare". As this involves rewriting the reference values, do not perform this procedure except when adjusting the laser power during replacement of the optical pick-up and when replacing the IC102. Otherwise the optical pick-up check may deteriorate.

Note: Perform this function with the optical pick-up set at room temperature.

Procedure:

- Press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button to display "Iop NV Save" (C06).
- Press the \rightarrow "R" button and display "Iop [stop]".
- After the display changes to "Iop =xxsave?", press the \rightarrow "R" button.

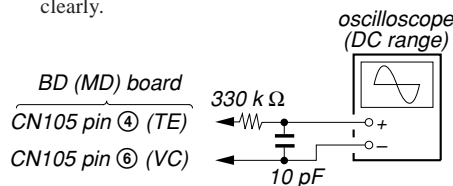
\rightarrow "R" button.

- After "Complete!" is displayed momentarily, the display changes to "Iop 7.0 mW".
- After the display changes to "Iop=yysave?", press the \rightarrow "R" button.
- When "Complete!" is displayed, it means that Iop NV saving has been completed.

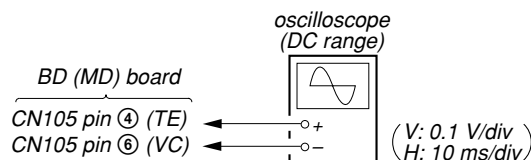
12. TRAVERSE ADJUSTMENT

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



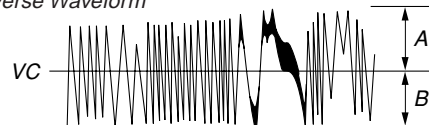
Connection:



Procedure:

- Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) on the BD (MD) board.
- Load a disc (any available on the market). (Refer to Note 1)
- Press the \rightarrow "R" button to move the optical pick-up outside the pit.
- Press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button to display "EF MO ADJUST" (C07).
- Press the \rightarrow "R" button to display "EFB = $\square\square$ MO-R".
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
- Press the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button so that the waveform of the oscilloscope becomes the specified value.
(When the $\leftarrow \leftarrow$ "R" or $\rightarrow \rightarrow$ "R" button is pressed, the $\square\square$ of "EFB = $\square\square$ " changes and the waveform changes) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
(Read power traverse adjustment)

Traverse Waveform

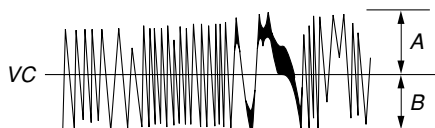


Specification $A = B$

- Press the \rightarrow "R" button and save the result of adjustment to the non-volatile memory ("EFB = $\square\square$ SAVE" will be displayed for a moment. Then "EFB = $\square\square$ MO-W" will be displayed).

8. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button so that the waveform of the oscilloscope becomes the specified value.
(When the **◀◀◀ "R"** or **▶▶▶ "R"** button is pressed, the **VC** of "EFB = VC" changes and the waveform changes) In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.
(Write power traverse adjustment)

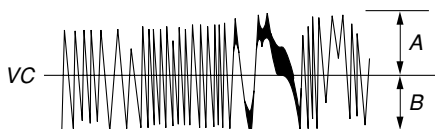
Traverse Waveform



Specification A = B

9. Press the **ENTER/YES "R"** button, and save the adjustment results in the non-volatile memory. ("EFB = VC SAVE" will be displayed for a moment)
10. "EFB = VC MO-P" will be displayed.
The optical pick-up moves to the pit area automatically and servo is imposed.
11. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button until the waveform of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.

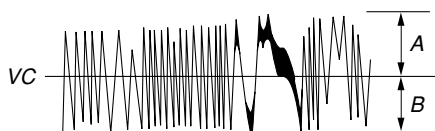
Traverse Waveform



Specification A = B

12. Press the **ENTER/YES "R"** button, and save the adjustment results in the non-volatile memory. ("EFB = VC SAVE" will be displayed for a moment)
Next "EF MO ADJUST" (C07) is displayed. The disc stops rotating automatically.
13. Press the **MD** button and take out the disc.
14. Load the check disc (TDYS-1).
15. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "EF CD ADJUST" (C08).
16. Press the **ENTER/YES "R"** button to display "EFB = VC CD".
Servo is imposed automatically.
17. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button so that the waveform of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.

Traverse Waveform



Specification A = B

18. Press the **ENTER/YES "R"** button, display "EFB = VC SAVE" for a moment and save the adjustment results in the non-volatile memory.
Next "EF CD ADJUST" (C08) will be displayed.
19. Press the **MD** button and take out the check disc.

Adjustment Location: BD (MD) board (see page 47)

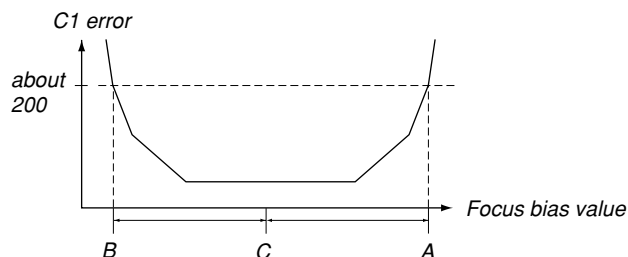
13. FOCUS BIAS ADJUSTMENT

Procedure:

- Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 40))
- Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "CPLAY2 MODE" (C36).
- Press the **ENTER/YES "R"** button to display "CPLAY2MID".
- Press the **MENU/NO "R"** button when "C = 0000 AD = 00" is displayed.
- Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "FBIAS ADJUST" (C09).
- Press the **ENTER/YES "R"** button to display "0000/00 a = 00".
The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the 2 digits after "a =" indicate the focus bias value.
- Press the **▶▶▶ "R"** button and find the focus bias value at which the C1 error rate becomes about 200 (refer to Note 2).
- Press the **ENTER/YES "R"** button to display "0000/00 b = 00".
- Press the **◀◀◀ "R"** button and find the focus bias value at which the C1 error rate becomes about 200.
- Press the **ENTER/YES "R"** button to display "0000/00 c = 00".
- Check that the C1 error rate is below 20 and ADER is 00.
Then press the **ENTER/YES "R"** button.
- If the "(00)" in "00 - 00 - 00 (00)" is above 20, press the **ENTER/YES "R"** button.
If below 20, press the **MENU/NO "R"** button and repeat the adjustment from step 2.
- Press the **MD** button and take out the disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points A and B in the following figure using the above adjustment. The focal point position C is automatically calculated from points A and B.

Note 2: As the C1 error rate changes, perform the adjustment using the average value.



14. ERROR RATE CHECK

14-1. CD Error Rate Check

Procedure:

1. Load the check disc (TDYS-1).
2. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button and display "CPLAY2 MODE" (C36).
3. Press the **ENTER/YES "R"** button twice and display "CPLAY2 MID".
4. The display changes to "C = 0000 AD = 00".
5. Check that the C1 error rate is below 20.
6. Press the **MENU/NO "R"** button to stop playback, then press the **MD** button and take out the check disc.

14-2. MO Error Rate Check

Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 40))
2. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "CPLAY2 MODE" (C36).
3. Press the **ENTER/YES "R"** button to display "CPLAY2MID".
4. The display changes to "C1 = 0000 AD = 00".
5. If the C1 error rate is below 20, check that ADER is 00.
6. Press the **MENU/NO "R"** button to stop playback, then press the **MD** button and take out the disc.

15. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 40))
2. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "CPLAY2 MODE" (C36).
3. Press the **ENTER/YES "R"** button twice to display "CPLAY2 MID".
4. Press the **MENU/NO "R"** button when "C1 = 0000 AD = 00" is displayed.
5. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "FBIAS CHECK" (C16).
6. Press the **ENTER/YES "R"** button to display "0000/00 c = 00". The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the 2 digits after "c =" indicate the focus bias value.
Check that the C1 error is below 20 and ADER is below 2.
7. Press the **ENTER/YES "R"** button and display "0000/00 b = 00".
Check that the C1 error is below 100 and ADER is below 2.
8. Press the **ENTER/YES "R"** button and display "0000/00 a = 00".
Check that the C1 error is below 100 and ADER is below 2.
9. Press the **MENU/NO "R"** button, then press the **MD** button and take out the disc.

Note: If the C1 error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

16. AUTO GAIN CONTROL OUTPUT LEVEL ADJUSTMENT

Be sure to perform this adjustment when the optical pick-up is replaced.

If the adjustment results becomes "Adjust NG!", the optical pick-up may be faulty or the servo system circuits may be abnormal.

16-1. CD Auto Gain Control Output Level Adjustment

Procedure:

1. Load the check disc (TDYS-1).
2. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "AG Set (CD)" (C11).
3. When the **ENTER/YES "R"** button is pressed, the adjustment will be performed automatically.
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (CD)" (C11).
4. Press the **MD** button and take out the check disc.

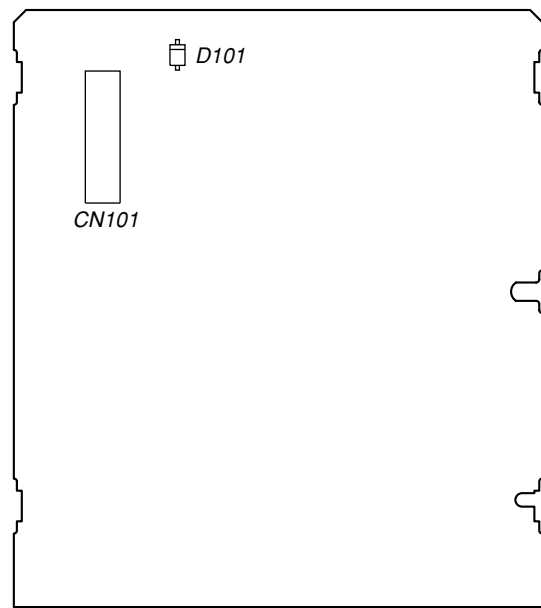
16-2. MO Auto Gain Control Output Level Adjustment

Procedure:

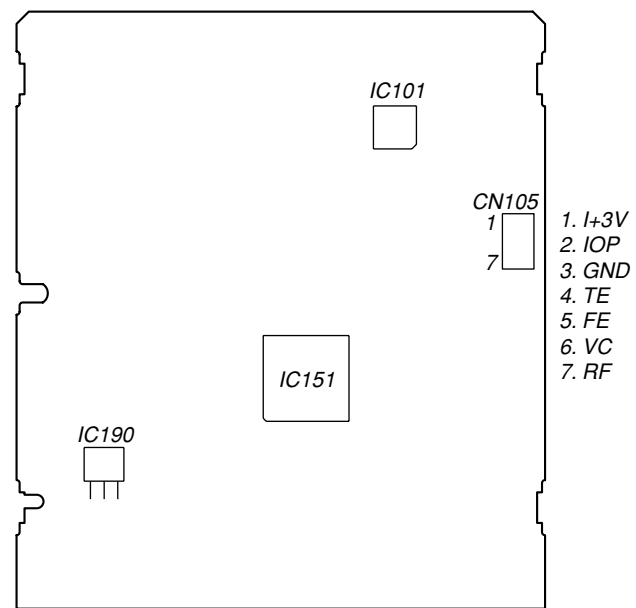
1. Load the test disc (MDW-74/GA-1).
2. Press the **◀◀◀ "R"** or **▶▶▶ "R"** button to display "AG Set (MO)" (C10).
3. When the **ENTER/YES "R"** button is pressed, the adjustment will be performed automatically.
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (MO)" (C10).
4. Press the **MD** button and take out the test disc.

Adjustment and checking Location:

– BD (MD) BOARD (Component Side) –



– BD (MD) BOARD (Conductor Side) –



Note: It is useful to use the jig for checking the waveform. (Refer to Servicing Notes on page 11)

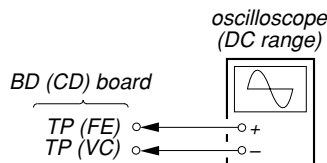
CD SECTION

Note:

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
 2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
 3. Use an oscilloscope with more than 10MΩ impedance.
 4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
 5. Level doesn't change whichever with normal speed or with four times speed.
 6. Use the following jig.
 - Extension jig (21 core) (Part No. J-2501-075-A)
- CN101 on the BD (CD) board to CN1002 on the MD DIGITAL board

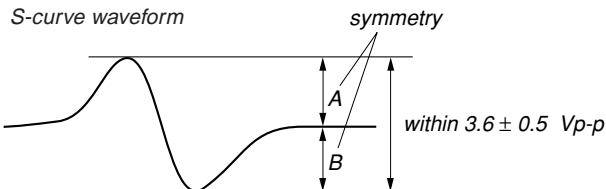
S Curve Check

Connection:



Procedure:

1. Connect an oscilloscope to test point TP (FE) and TP (VC) on the BD (CD) board.
2. Turn the power on.
3. Put the disc (YEDS-18) in and turned power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out)
4. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3.6 ± 0.5 Vp-p.

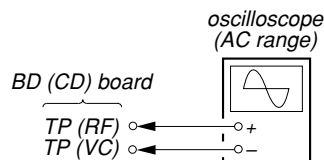


- Note:**
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
 - Take sweep time as long as possible and light up the brightness to obtain best waveform.

Checking Location: BD (CD) board

RF Level Check

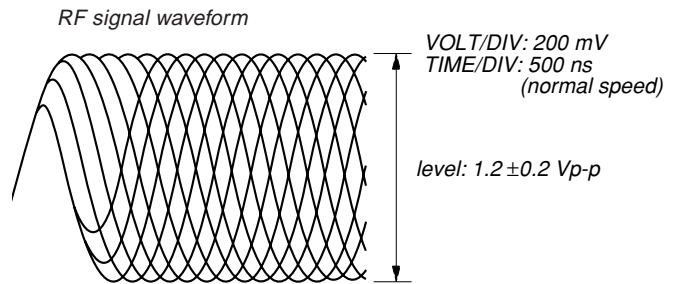
Connection:



Procedure:

1. Connect an oscilloscope to test point TP (RF) and TP (VC) on the BD (CD) board.
2. Turn the power on.
3. Put the disc (YEDS-18) in to playback the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

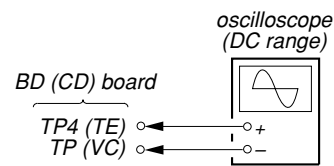
Note: A clear RF signal waveform means that the shape “ \diamond ” can be clearly distinguished at the center of the waveform.



Checking Location: BD (CD) board

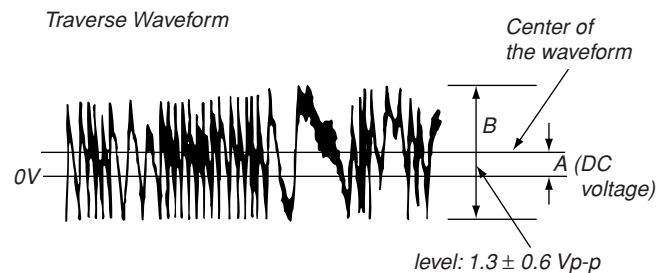
E-F Balance Check

Connection:

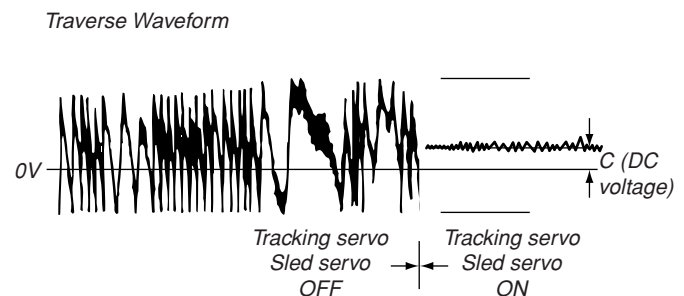


Procedure:

1. Connect an oscilloscope to test point TP (TE) and TP (VC) on the BD (CD) board.
2. Turn the power on.
3. Put the disc (YEDS-18) in to playback the number five track.
4. Press the **REPEAT** button. (The tracking servo and the sledding servo are turned OFF)
5. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform. Confirm the following :
 $A/B \times 100 = \text{less than } \pm 22\%$



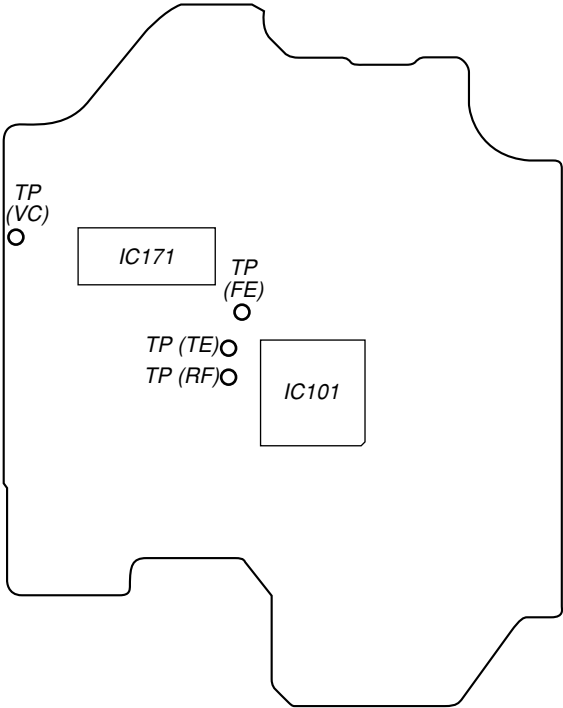
6. Press the **REPEAT** button. (The tracking servo and sledding servo are turned ON)
 Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 5.



Checking Location: BD (CD) board

Checking Location:

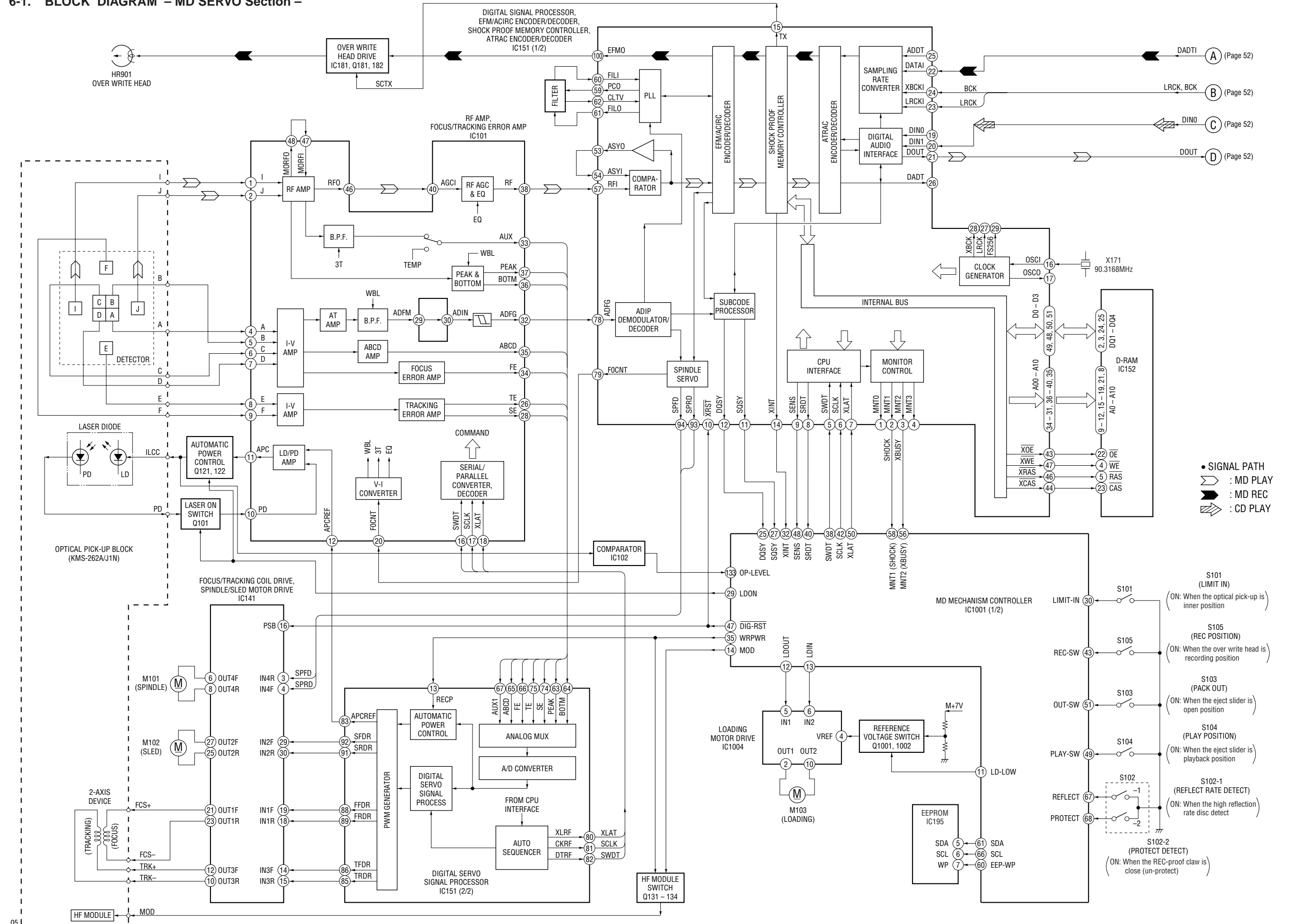
– BD (CD) BOARD (Conductor Side) –



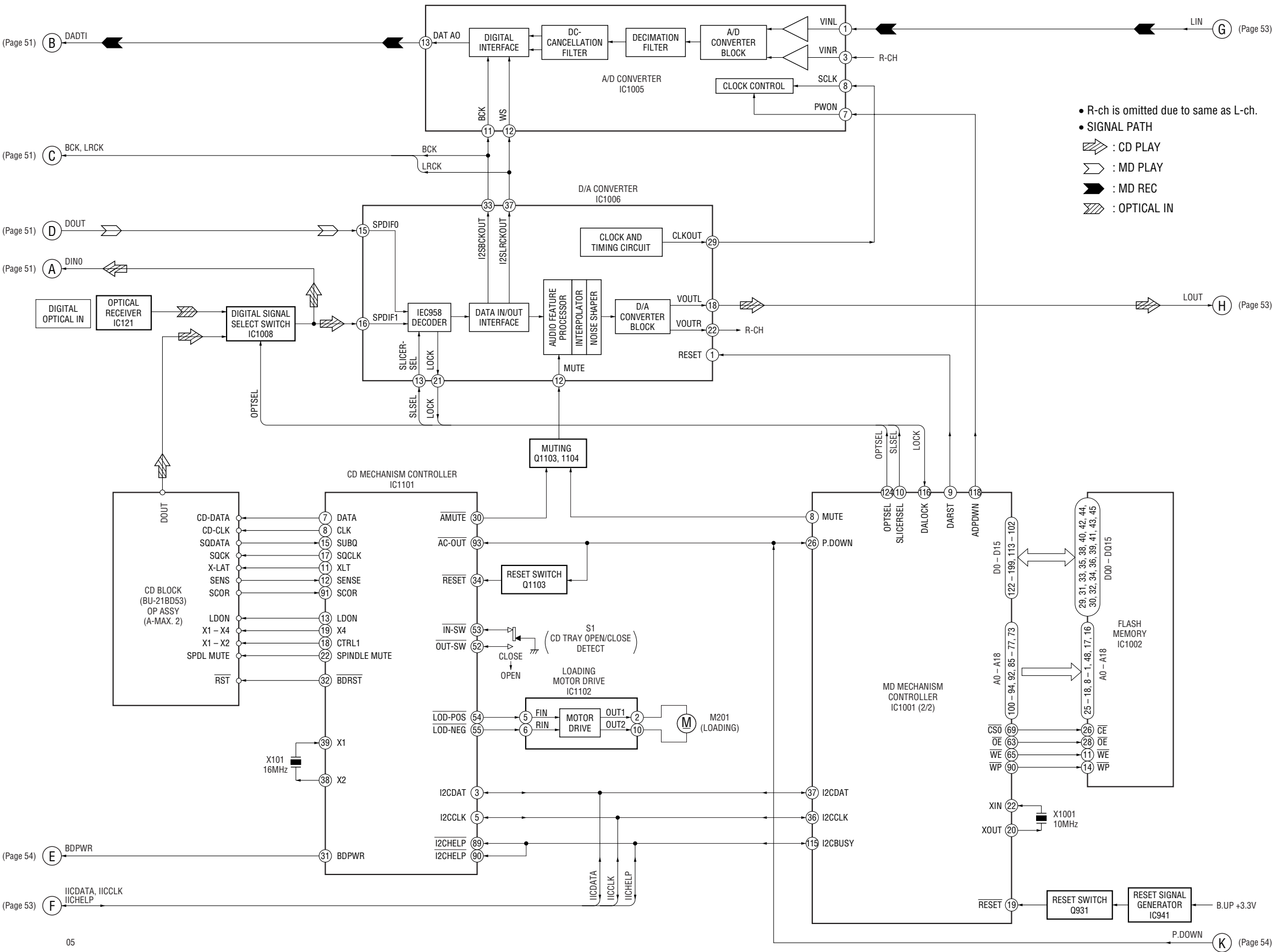
MEMO

SECTION 6 DIAGRAMS

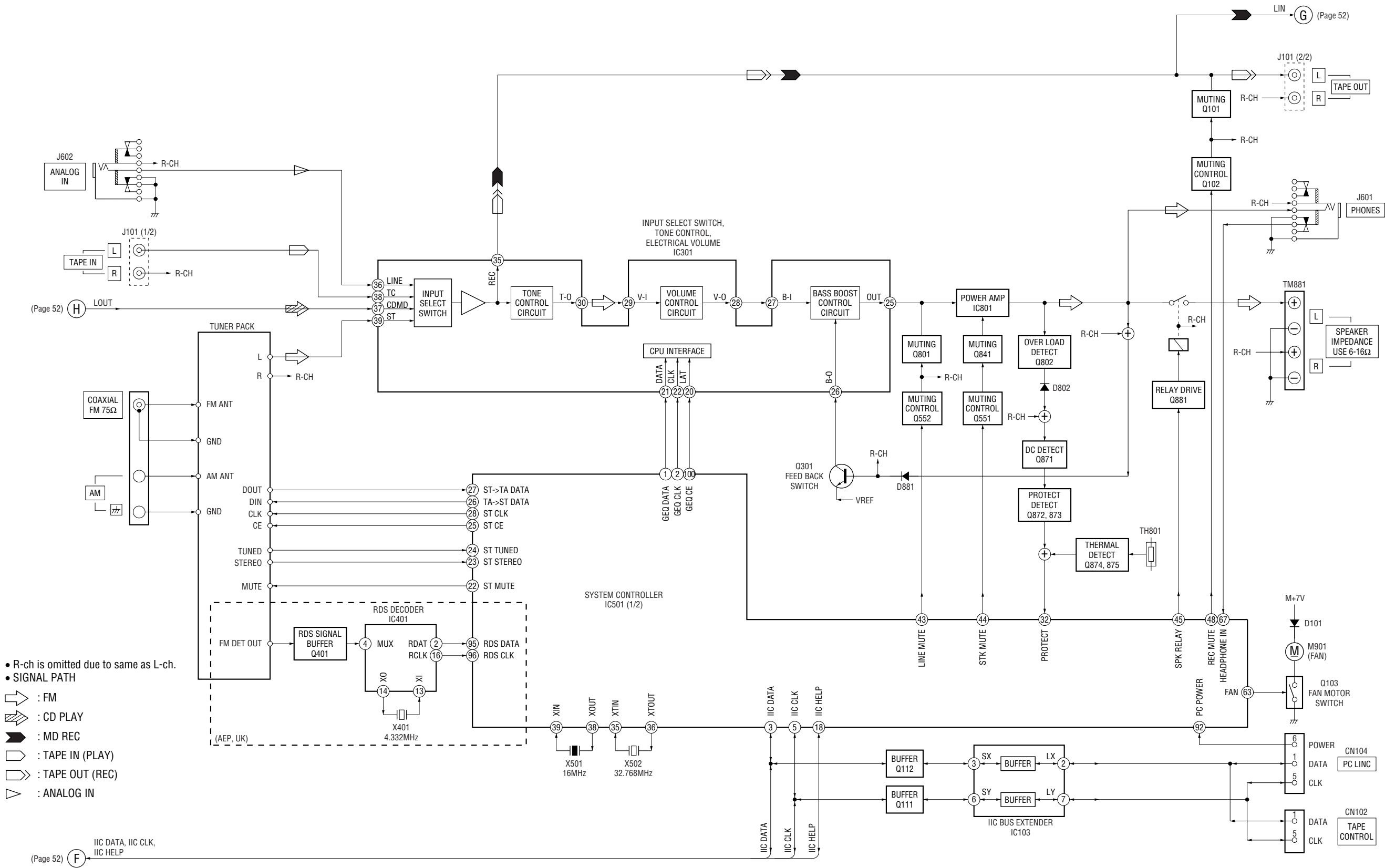
6-1. BLOCK DIAGRAM – MD SERVO Section –



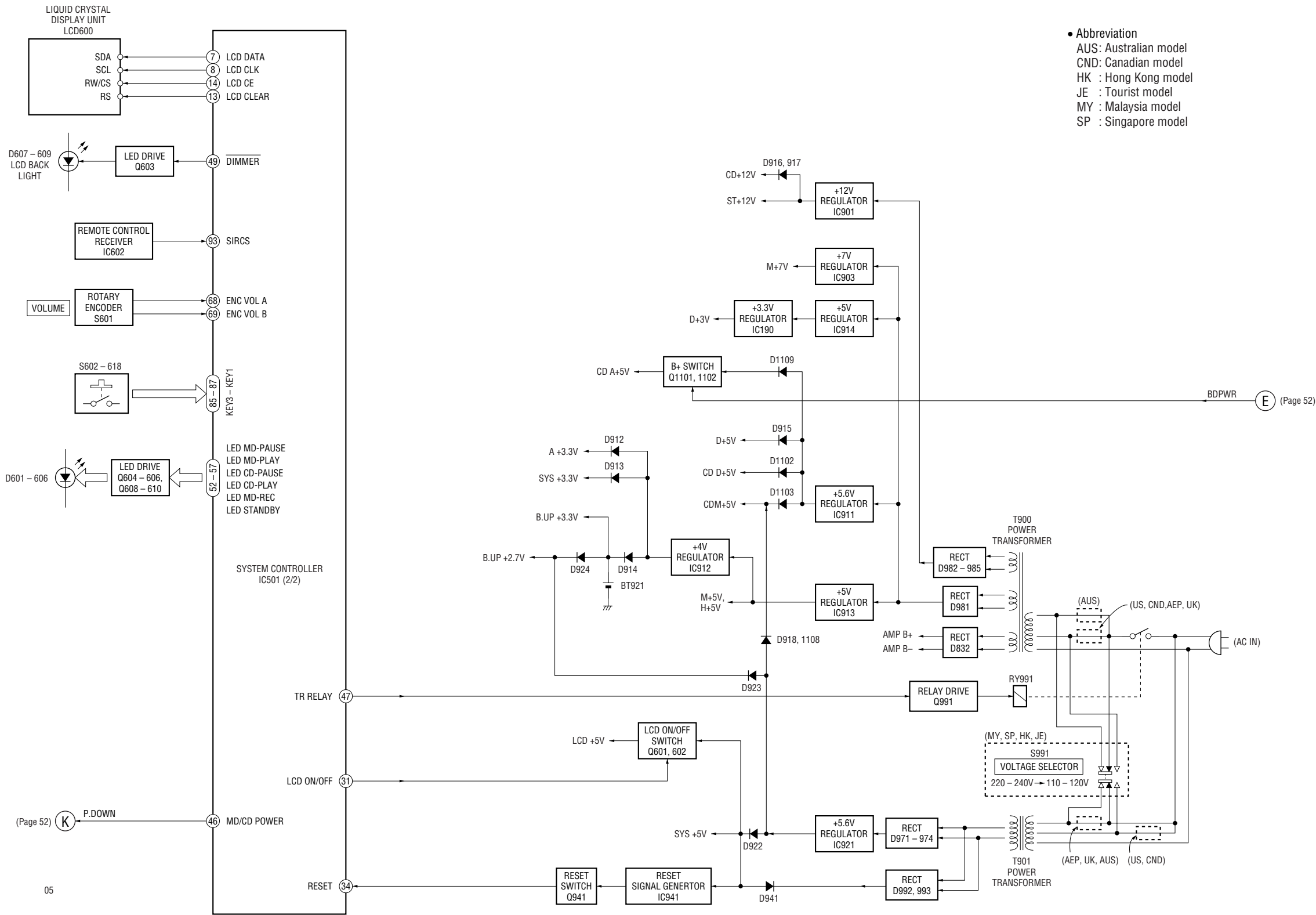
6-2. BLOCK DIAGRAMS – D/A, A/D CONVERTER Section –



6-3. BLOCK DIAGRAM – MAIN Section –



6-4. BLOCK DIAGRAM – DISPLAY, POWER SUPPLY Section –



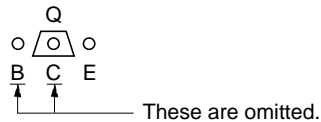
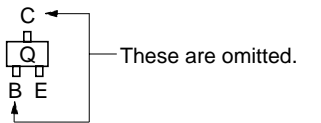
6-5. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

Note on Printed Wiring Boards:

- — : parts extracted from the component side.
- : parts extracted from the conductor side.
- ▨ : Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)

Caution:
Pattern face side: Parts on the pattern face side seen from
(Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from
(Component Side) the parts face are indicated.

- Indication of transistor.



Printed wiring board of BD (CD) board is shown only for referring, because CD base unit is replaced as a block.

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : μpF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{ W}$ or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.

Note:
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

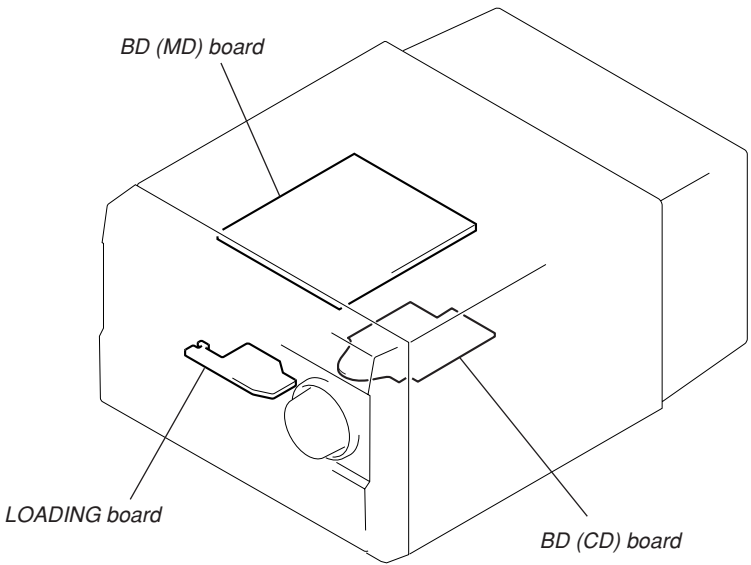
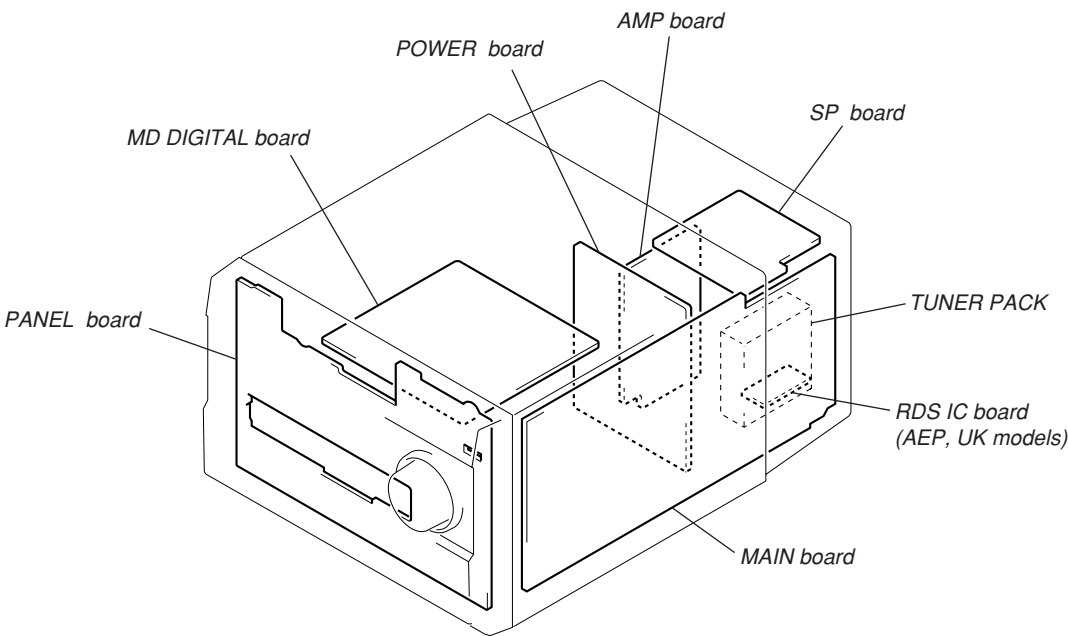
Note:
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 Δ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

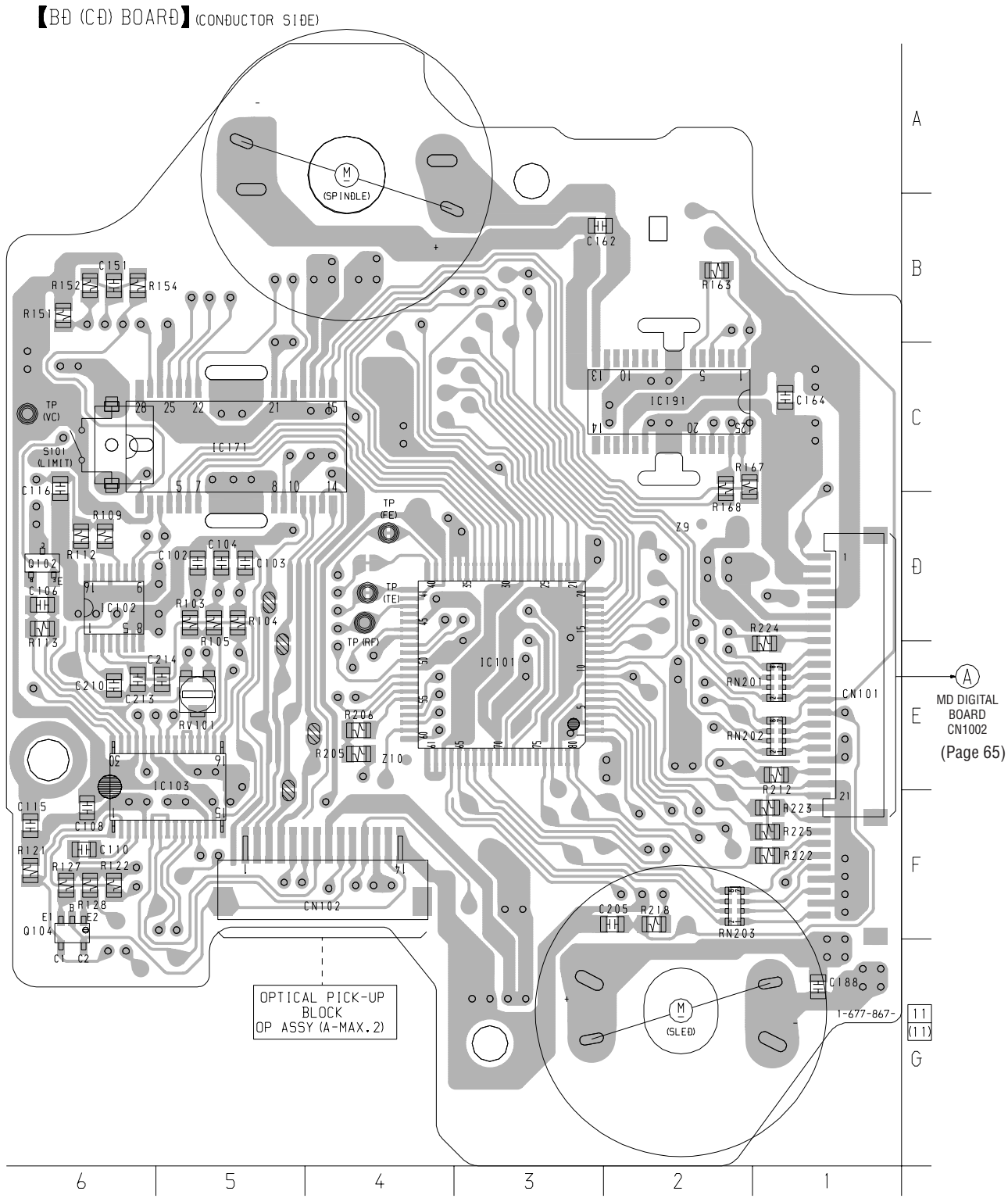
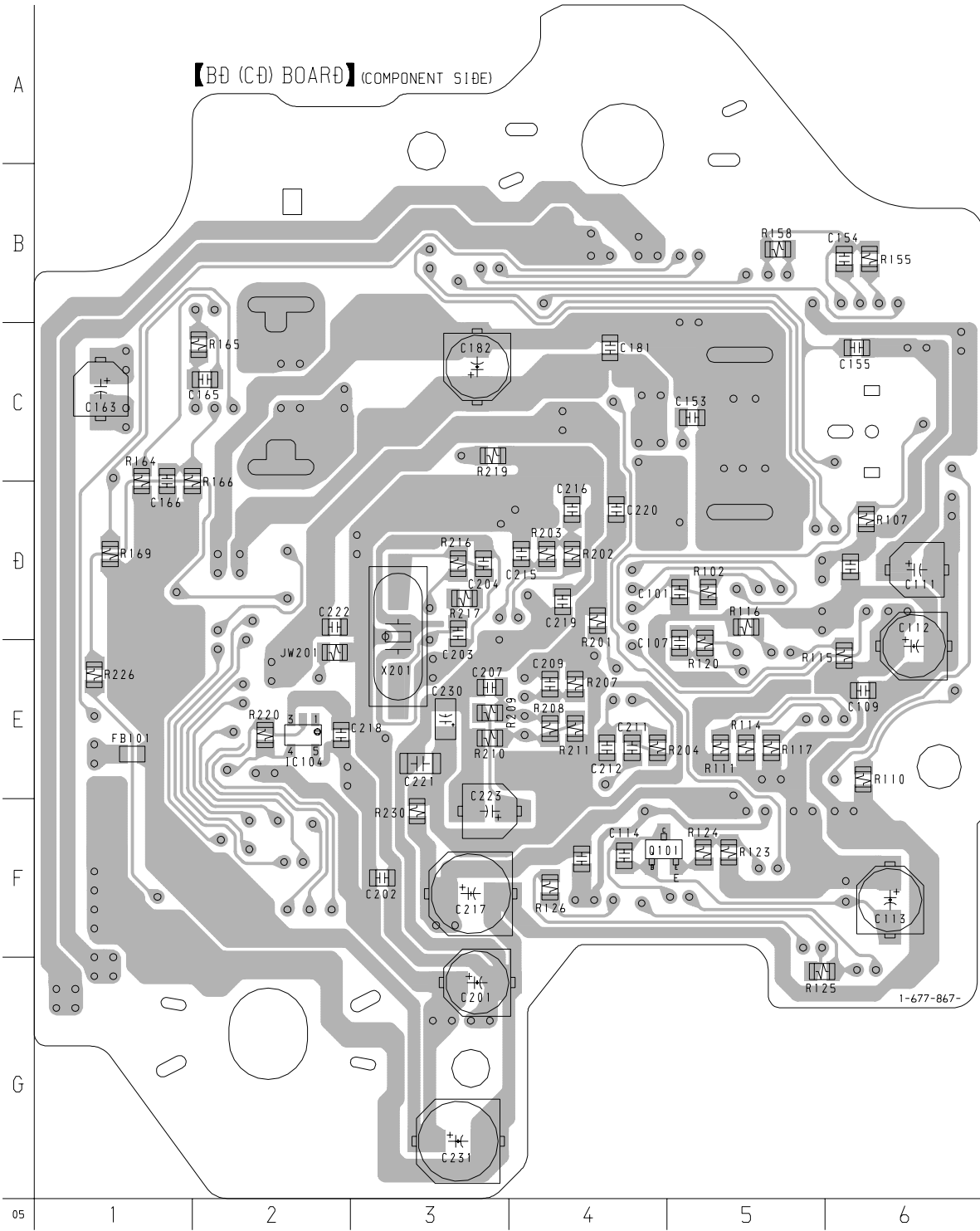
- : B+ Line.
- : B- Line.
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
 - : TUNER
 - : CD PLAY
 - : MD PLAY
 - : MD REC
 - : DIGITAL OPTICAL IN
 - : TAPE IN (PLAY)
 - : TAPE OUT (REC)
 - : ANALOG IN
- Abbreviation
 - AUS : Australian model
 - CND : Canadian model
 - HK : Hong Kong model
 - JE : Tourist model
 - KR : Korean model
 - MY : Malaysia model
 - SP : Singapore model

Schematic diagram of BD (CD) board is shown only for referring, because CD base unit is replaced as a block.

• Circuit Boards Location



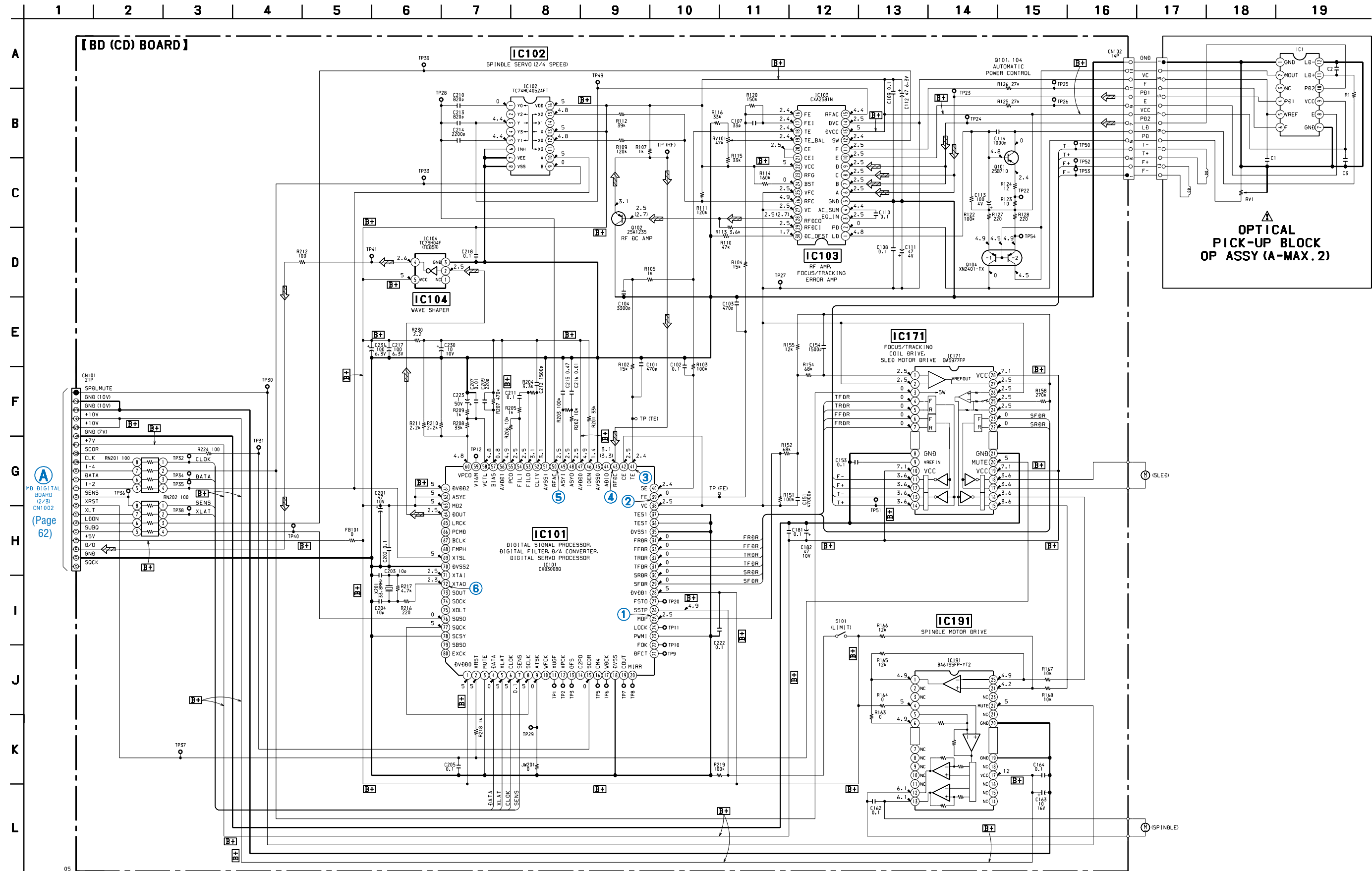
6-6. PRINTED WIRING BOARD – BD (CD) Board – • See page 55 for Circuit Boards Location.



There are a few cases that the part isn't mounted in model is printed on diagrams.

Printed wiring board of BD (CD) board is shown only for referring, because CD base unit is replaced as a block.

6-7. SCHEMATIC DIAGRAM – BD (CD) Board – • See page 76 for waveforms.



• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : CD STOP
() : CD PLAY

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

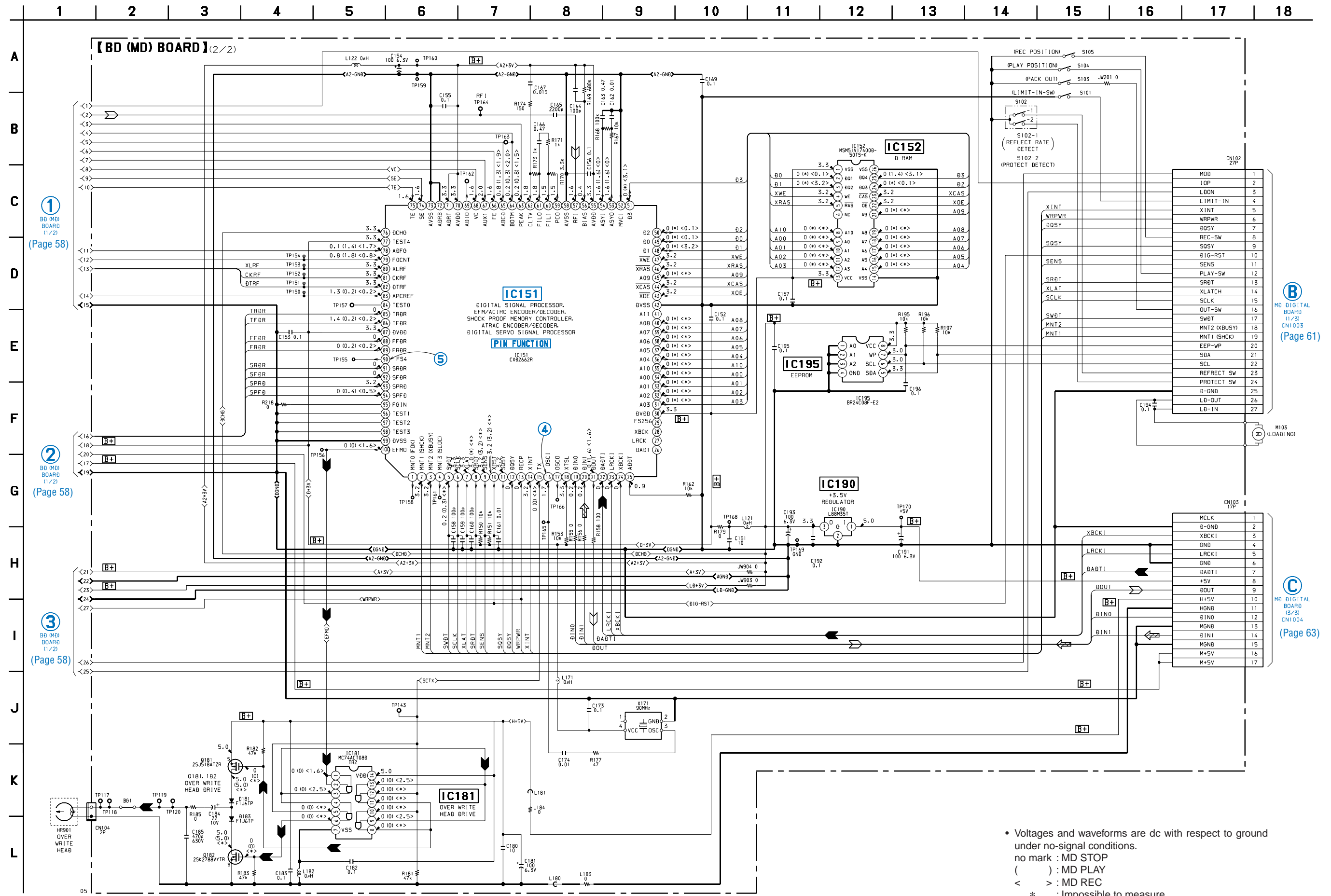
以阴影和 Δ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

Schematic diagram of BD (CD) board is shown only for referring, because CD base unit is replaced as a block.

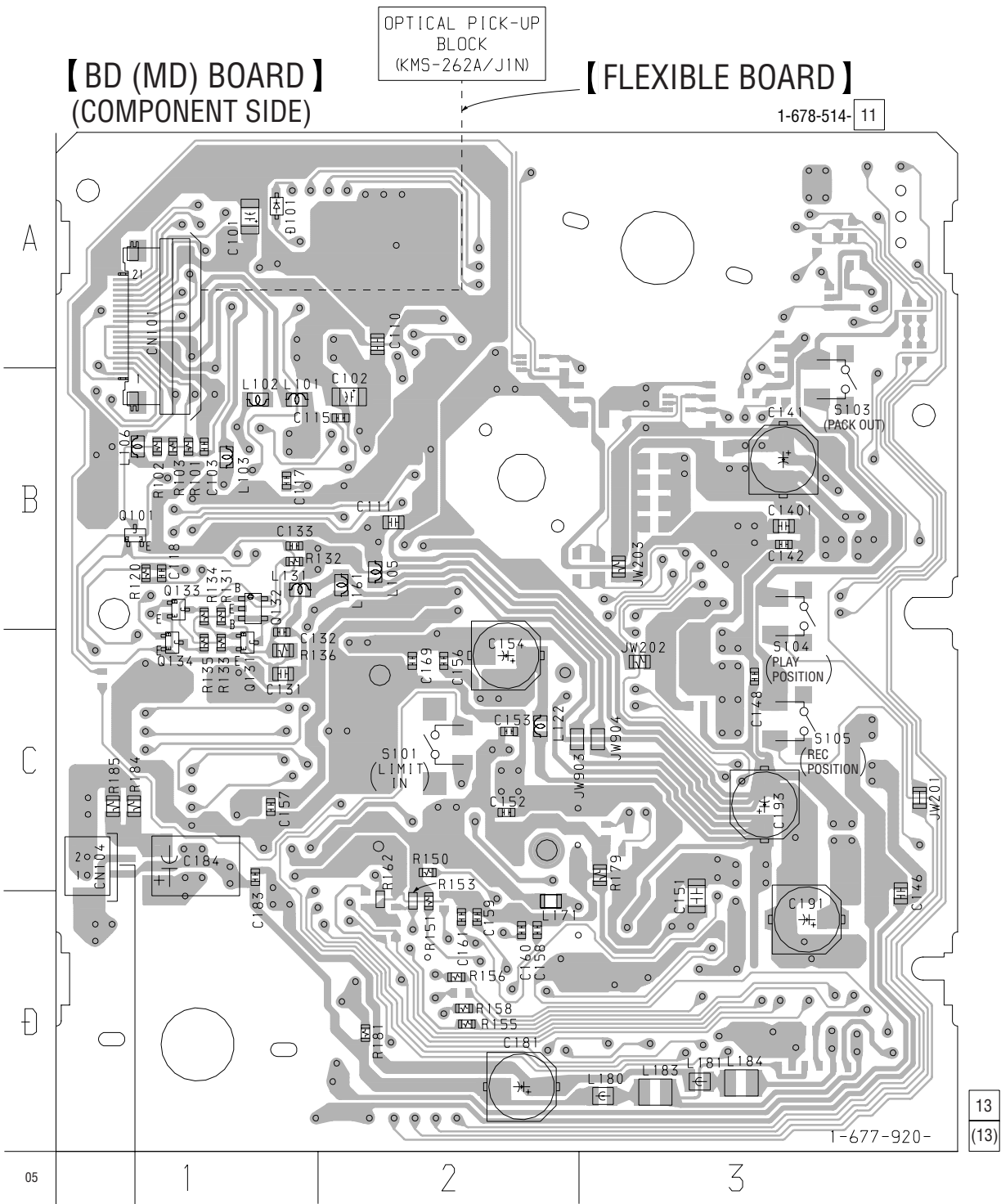


以阴影和△标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

6-9. SCHEMATIC DIAGRAM – BD (MD) Board (2/2) – • See page 76 for waveforms. • See page 77 for IC Block Diagram.

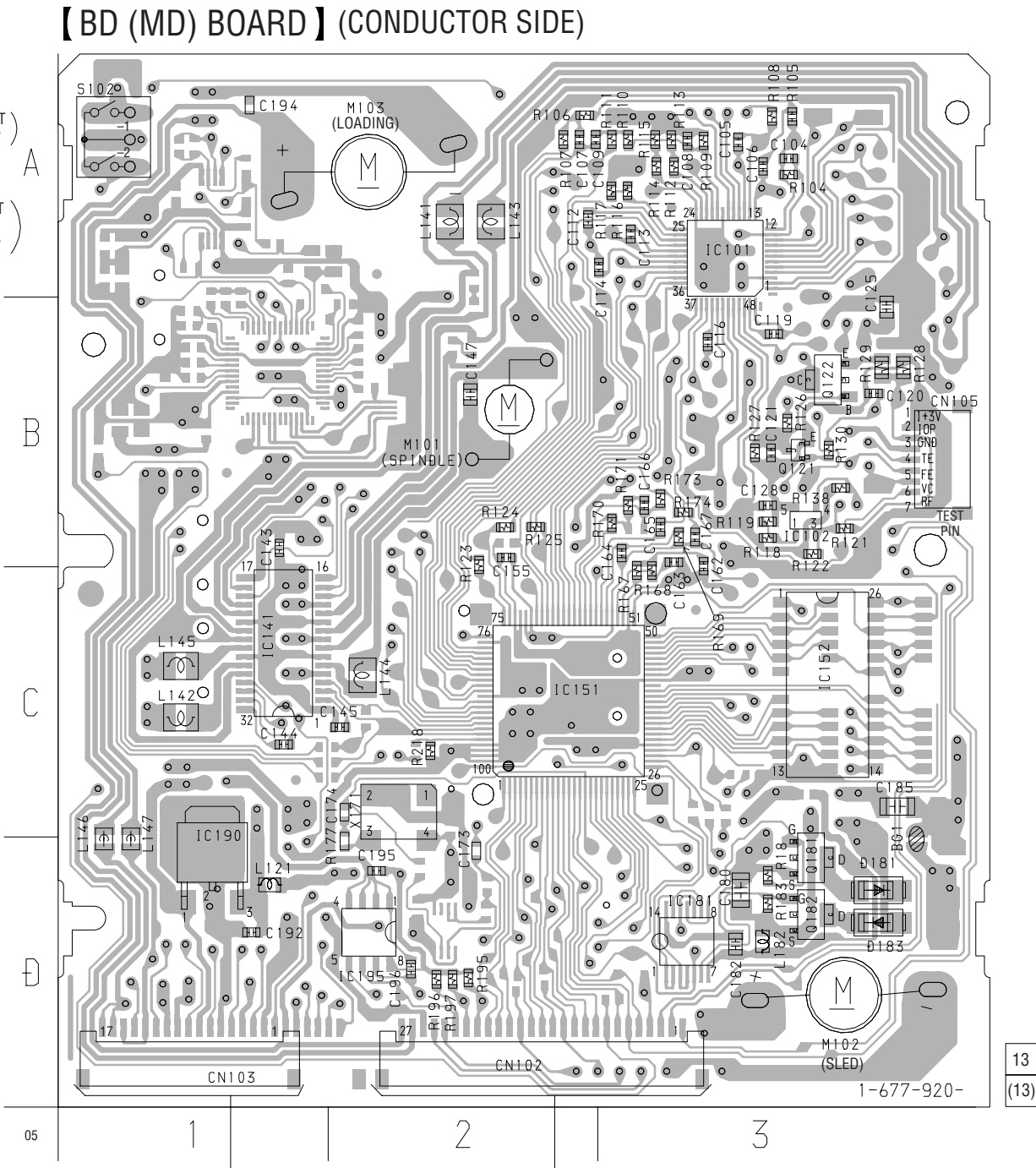


6-10. PRINTED WIRING BOARD – BD (MD) Board – • See page 55 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D101	A-1
Q101	B-1
Q131	C-1
Q132	B-1
Q133	B-1
Q134	C-1



MD DIGITAL BOARD
CN1004
(Page 65)

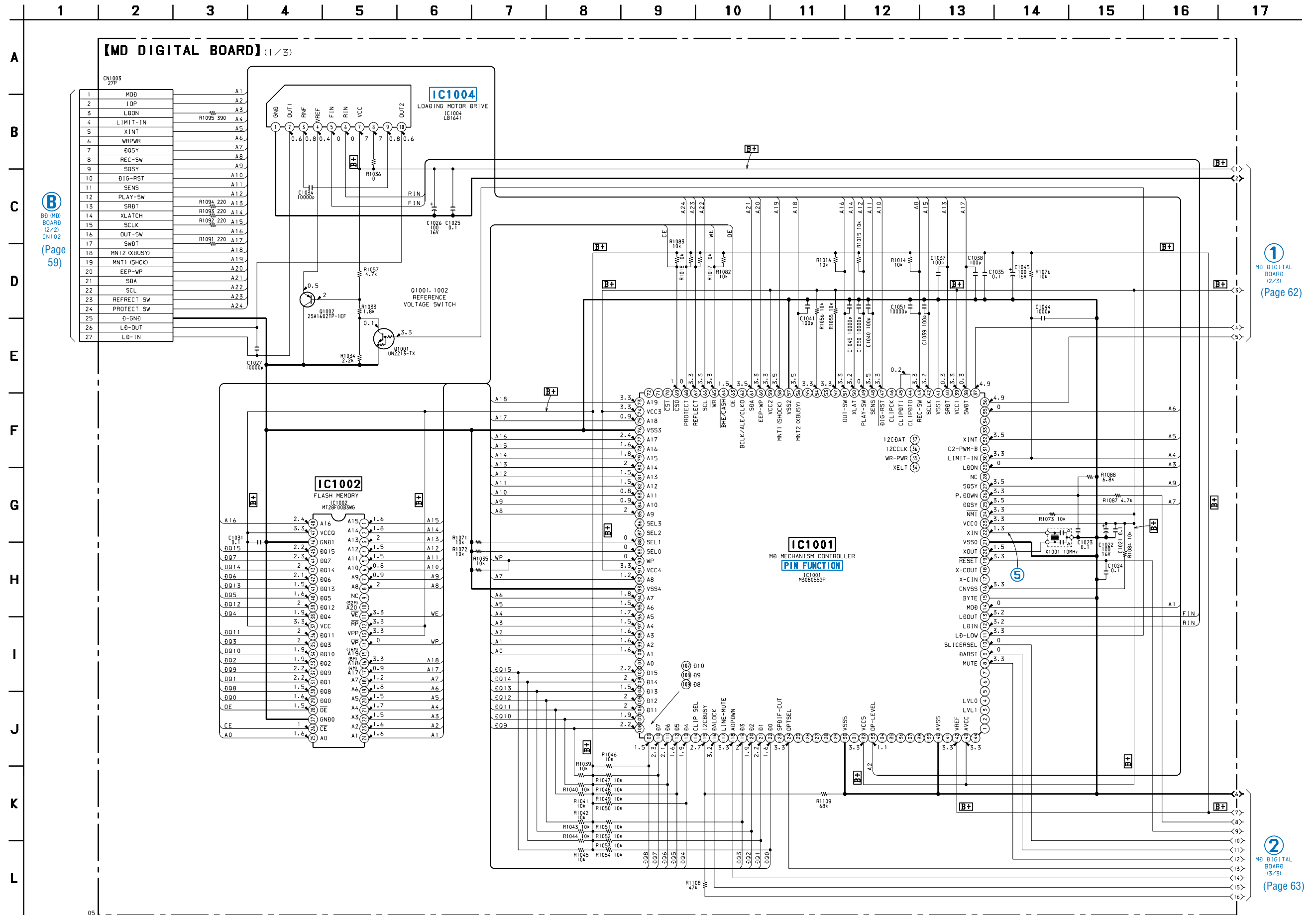
MD DIGITAL BOARD
CN1003
(Page 65)

• Semiconductor Location

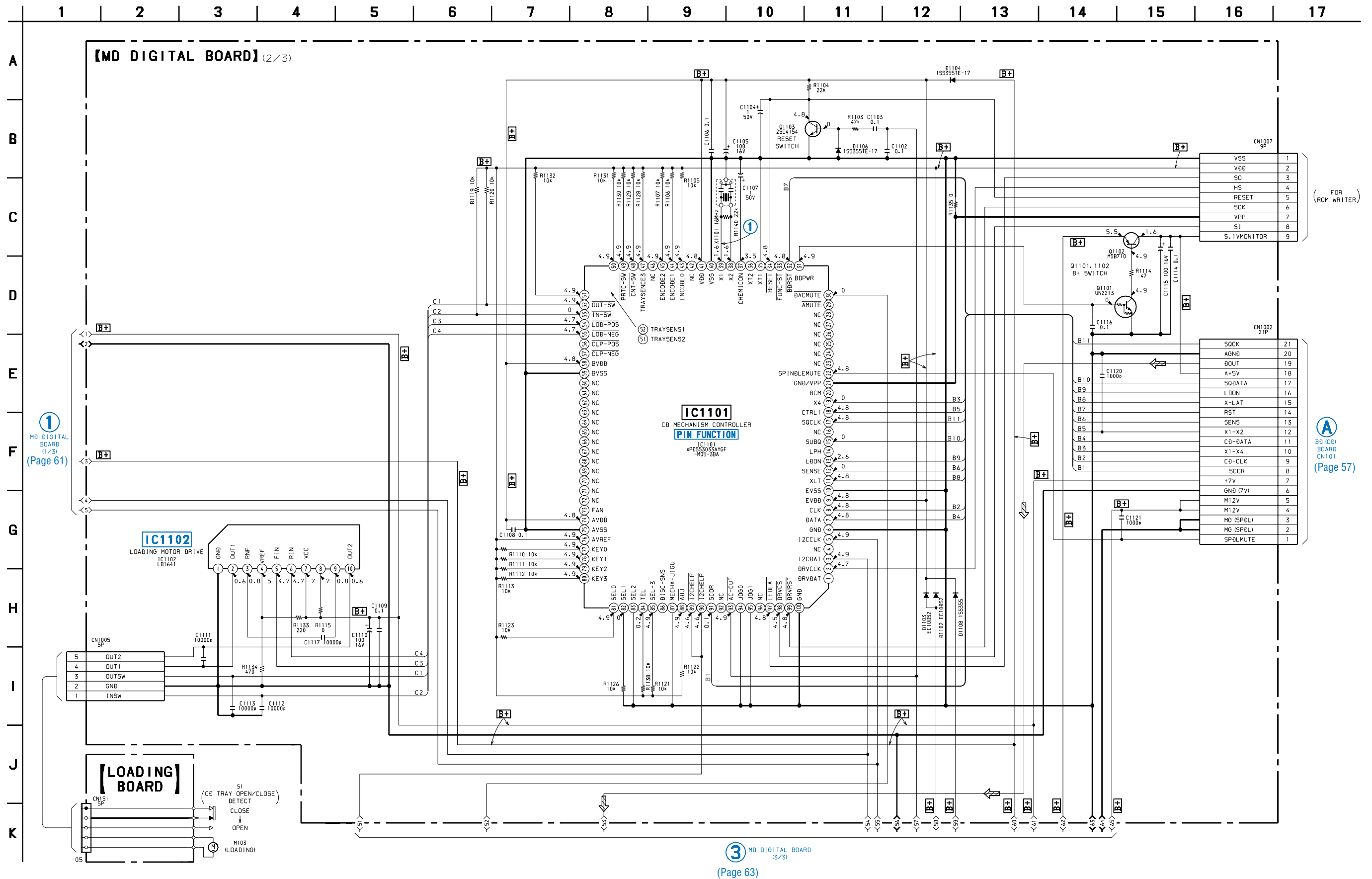
Ref. No.	Location	Ref. No.	Location
D181	D-3	IC181	D-3
D183	D-3	IC190	D-1
		IC195	D-2
IC101	A-3	Q121	B-3
IC102	B-3	Q122	B-3
IC141	C-1	Q181	D-3
IC151	C-2	Q182	D-3
IC152	C-3		

There are a few cases that the part isn't mounted in model is printed on diagrams.

6-11. SCHEMATIC DIAGRAM – MD DIGITAL Board (1/3) – • See page 76 for waveform. • See page 77 for IC Block Diagram.

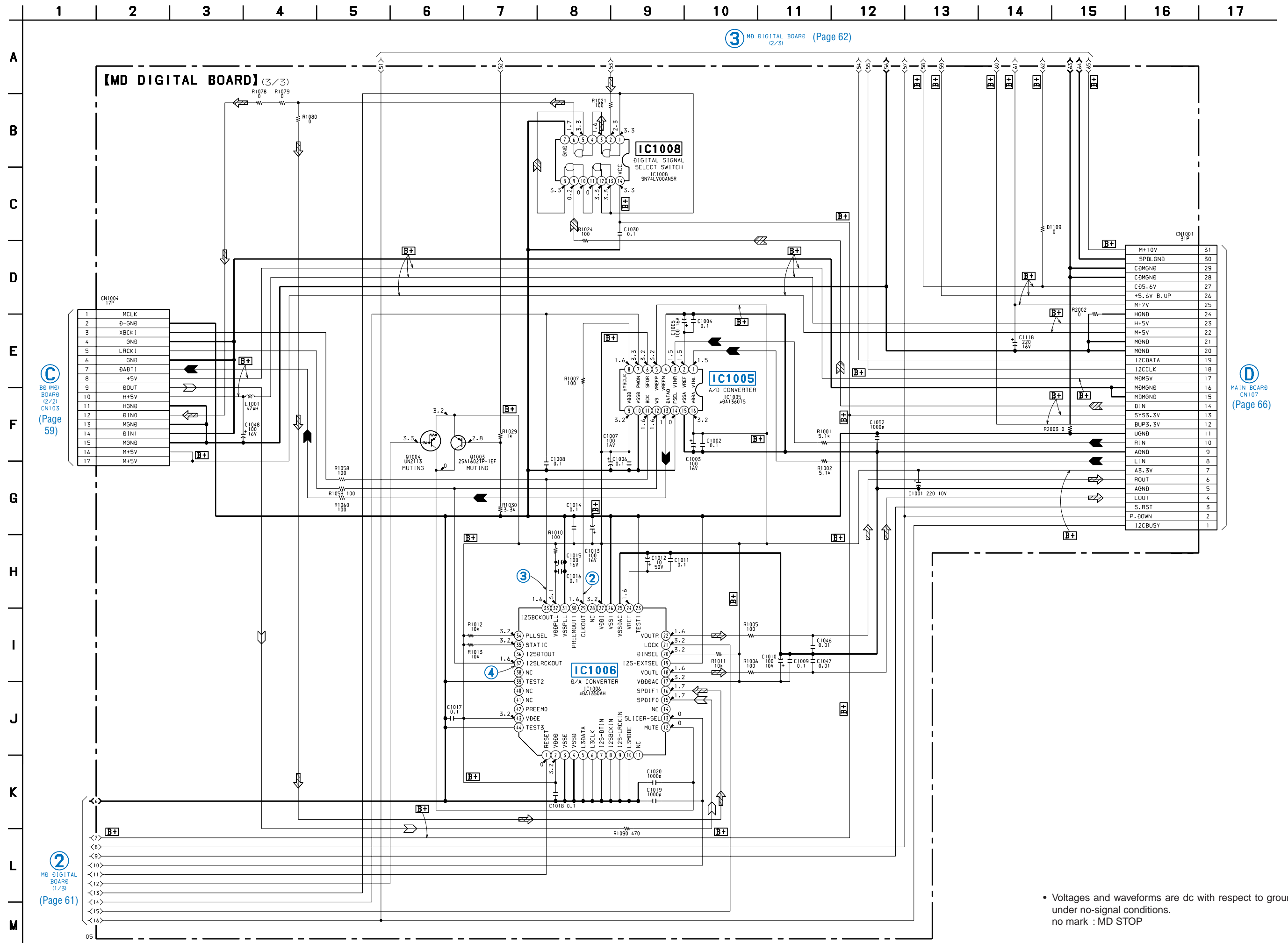


6-12. SCHEMATIC DIAGRAM – MD DIGITAL Board (2/3) – • See page 76 for waveform. • See page 77 for IC Block Diagram.



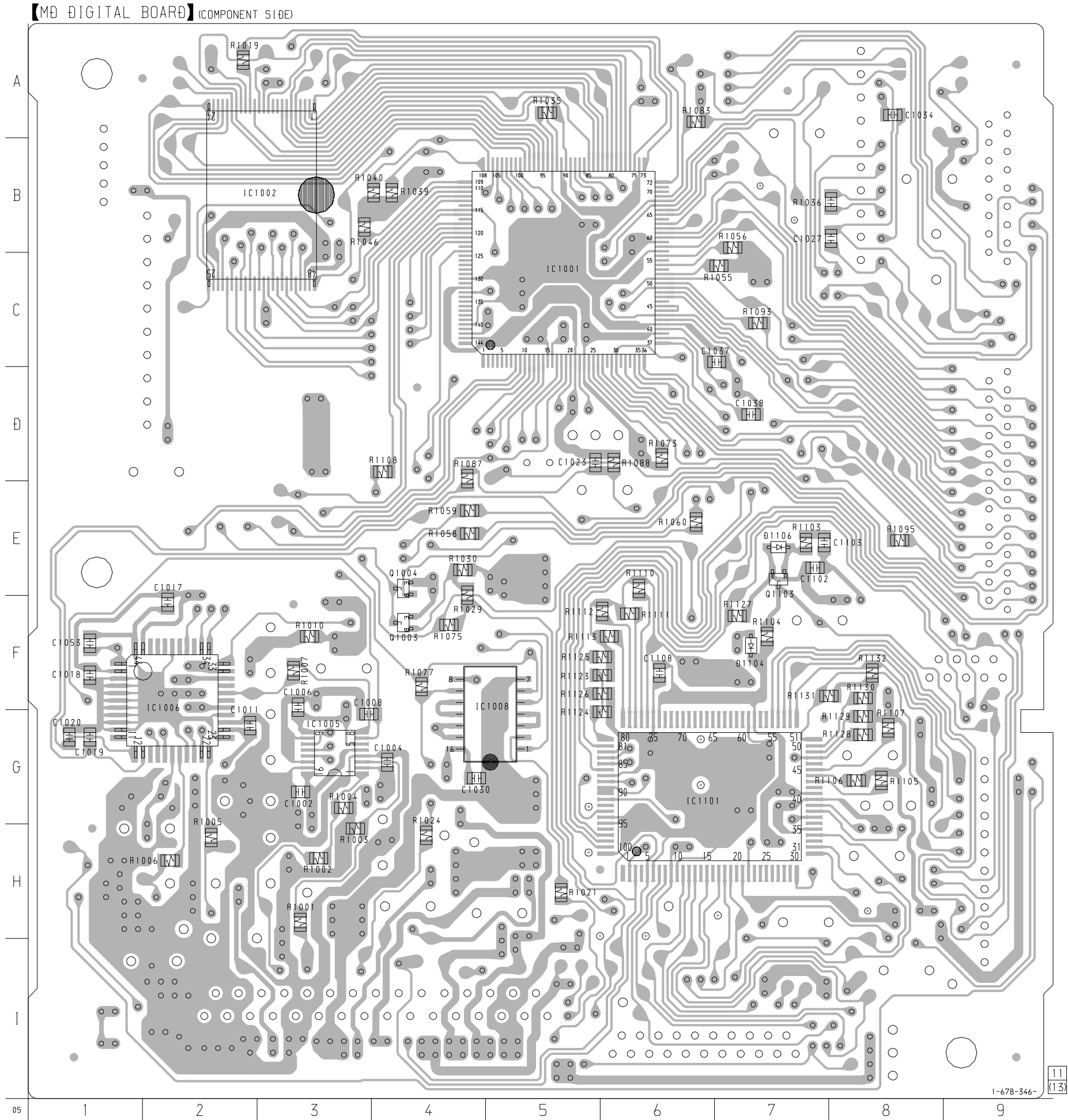
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : CD STOP

6-13. SCHEMATIC DIAGRAM – MD DIGITAL Board (3/3) – • See page 76 for waveforms. • See page 77 for IC Block Diagrams.

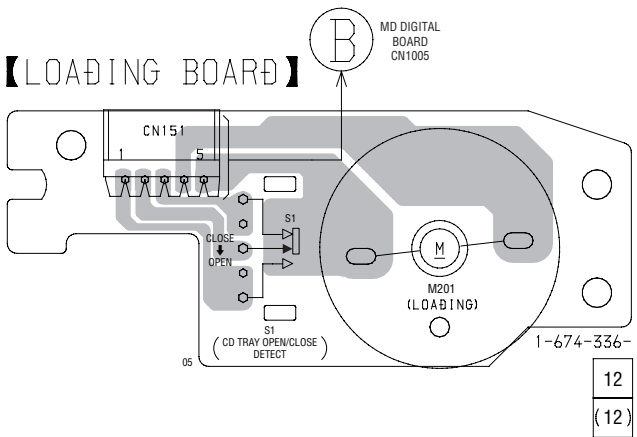
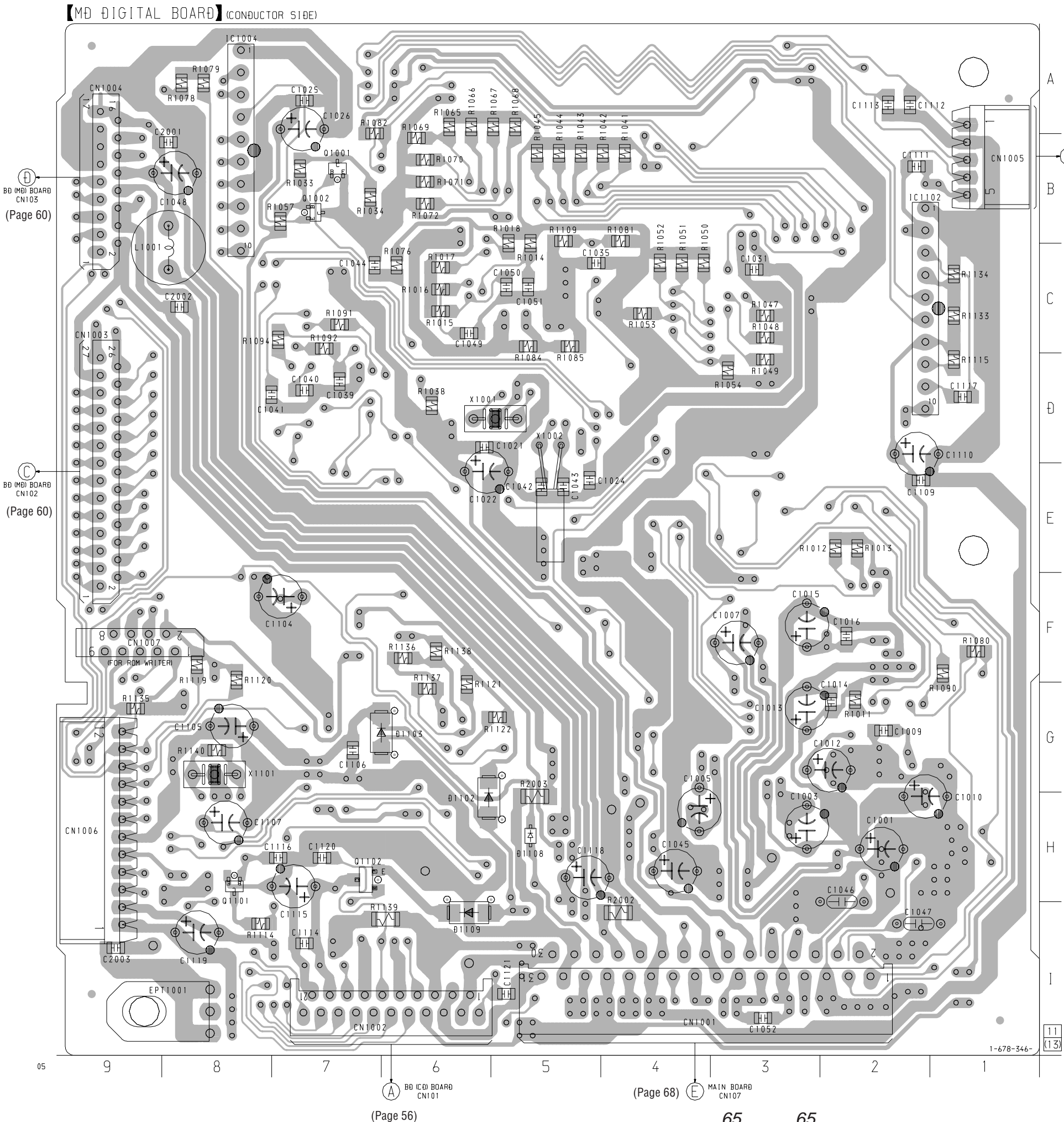


• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : MD STOP

6-14. PRINTED WIRING BOARD – MD DIGITAL Board (Component Side) – • See page 55 for Circuit Boards Location.



6-15. PRINTED WIRING BOARDS – MD DIGITAL (Conductor Side)/LOADING Boards – • See page 55 for Circuit Boards Location.

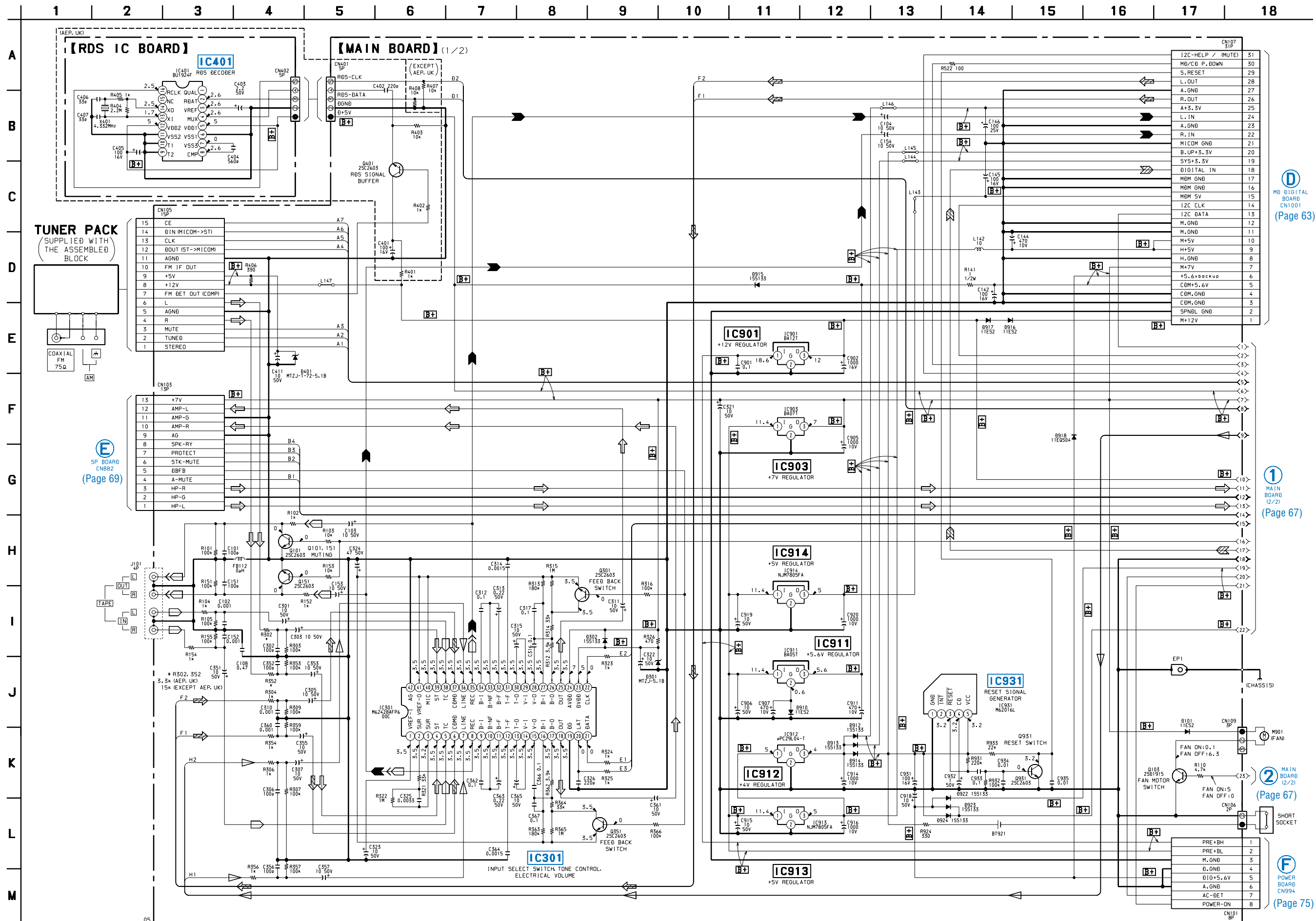


• Semiconductor Location

Ref. No.	Location
D1102	H-6
D1103	G-7
D1108	H-5
IC1004	B-8
IC1102	C-2
Q1001	B-7
Q1002	B-7
Q1101	H-8
Q1102	H-7

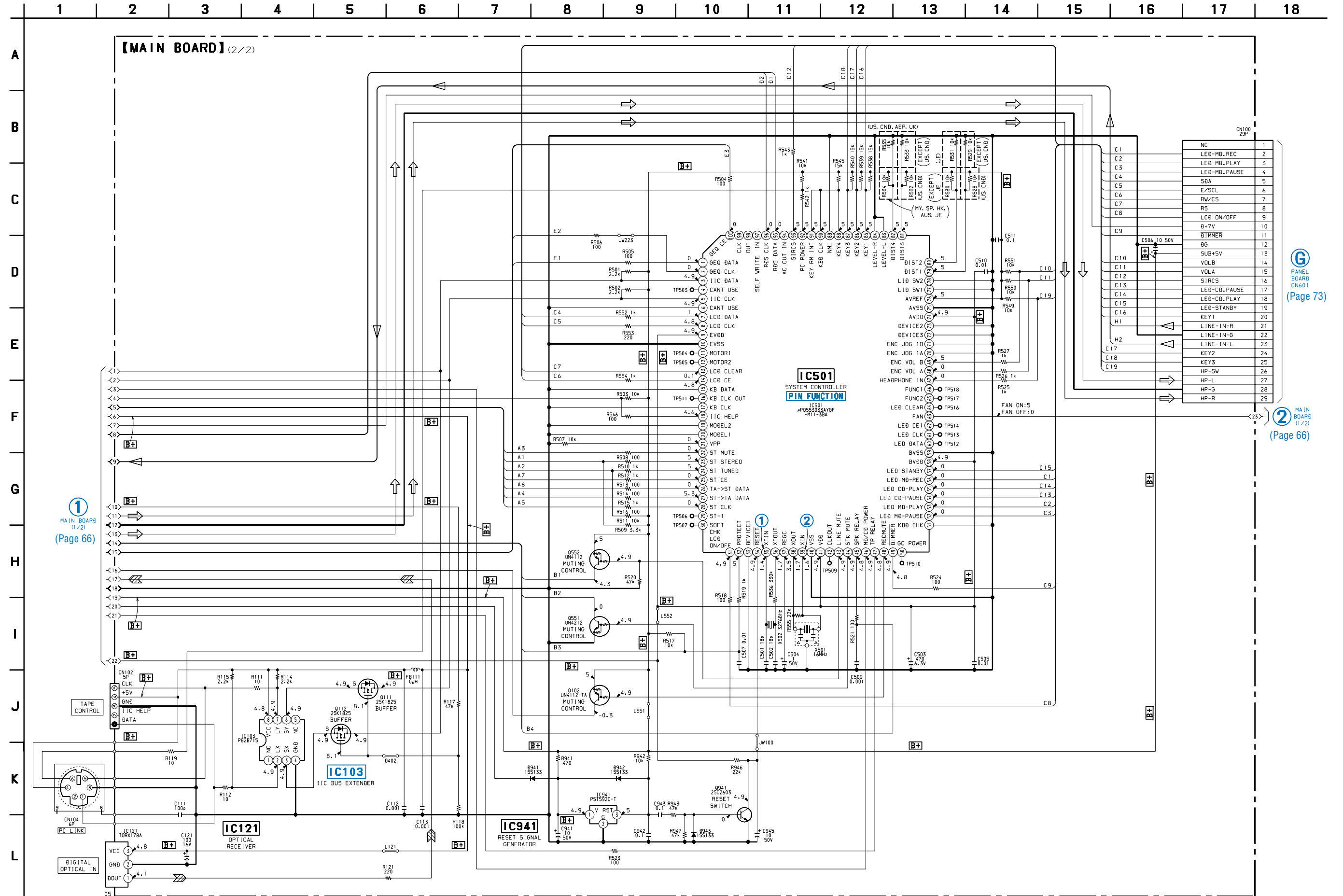
There are a few cases that the part isn't mounted in model is printed on diagrams.

6-16. SCHEMATIC DIAGRAM – MAIN (1/2)/RDS IC Boards – • See page 77 for IC Block Diagrams.



- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

6-17. SCHEMATIC DIAGRAM – MAIN Board (2/2) – • See page 76 for waveforms.



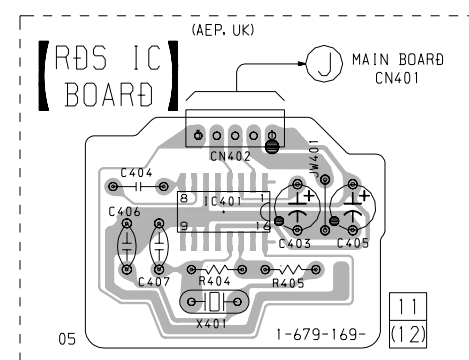
① MAIN BOARD (1/2) (Page 66)

② MAIN BOARD (1/2) (Page 66)

• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

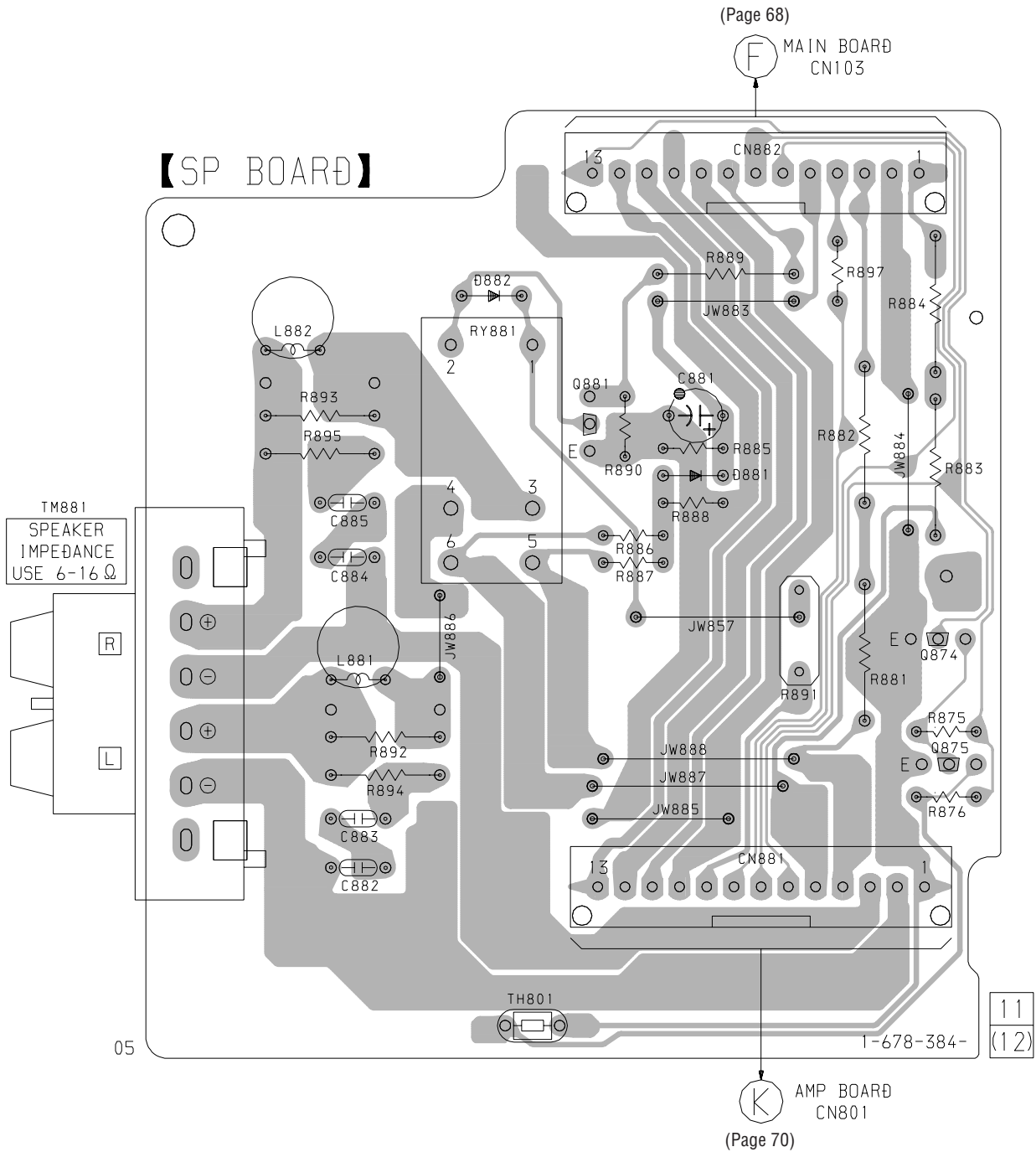


Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D101	B-5	D922	E-5	IC903	B-6	Q112	E-9
D301	C-9	D923	E-5	IC911	D-6	Q151	A-11
D302	C-9	D924	D-5	IC912	D-6	Q301	C-10
D401	D-10	D941	E-2	IC913	E-6	Q351	D-10
D910	D-6	D942	E-2	IC914	C-6	Q401	D-8
D912	D-5	D943	E-1	IC931	C-5	Q551	B-5
D913	D-5			IC941	E-2	Q552	D-4
D914	D-5	IC103	E-10			Q931	D-5
D915	E-6	IC121	E-11	Q101	B-11	Q941	E-1
D916	A-5	IC301	C-9	Q102	D-4		
D917	B-5	IC501	C-3	Q103	A-6		
D918	B-4	IC901	B-6	Q111	E-9		



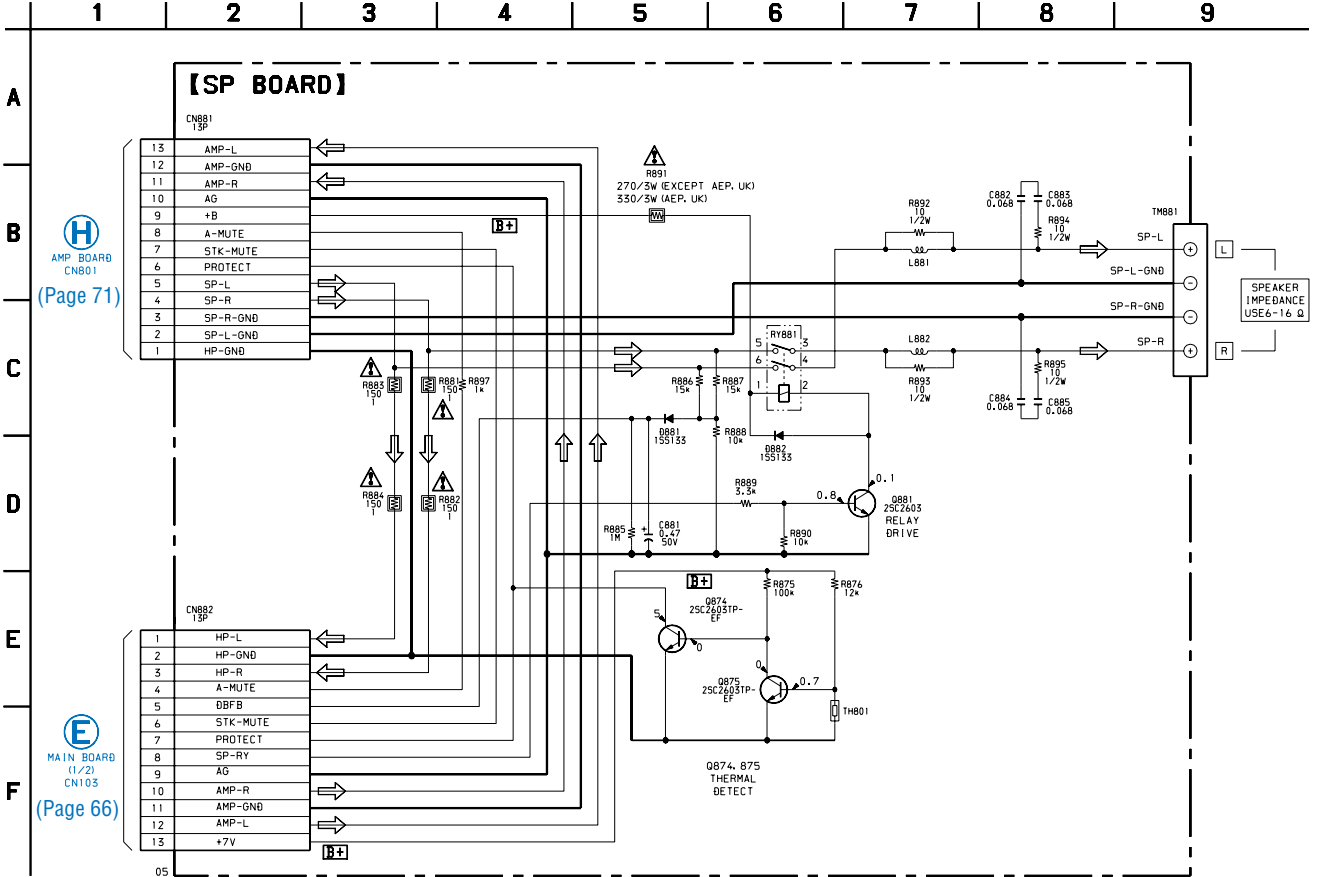
There are a few cases that the part isn't mounted in model is printed on diagrams.

6-19. PRINTED WIRING BOARD – SP Board – • See page 55 for Circuit Boards Location.



There are a few cases that the part isn't mounted in model is printed on diagrams.

6-20. SCHEMATIC DIAGRAM – SP Board –



• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

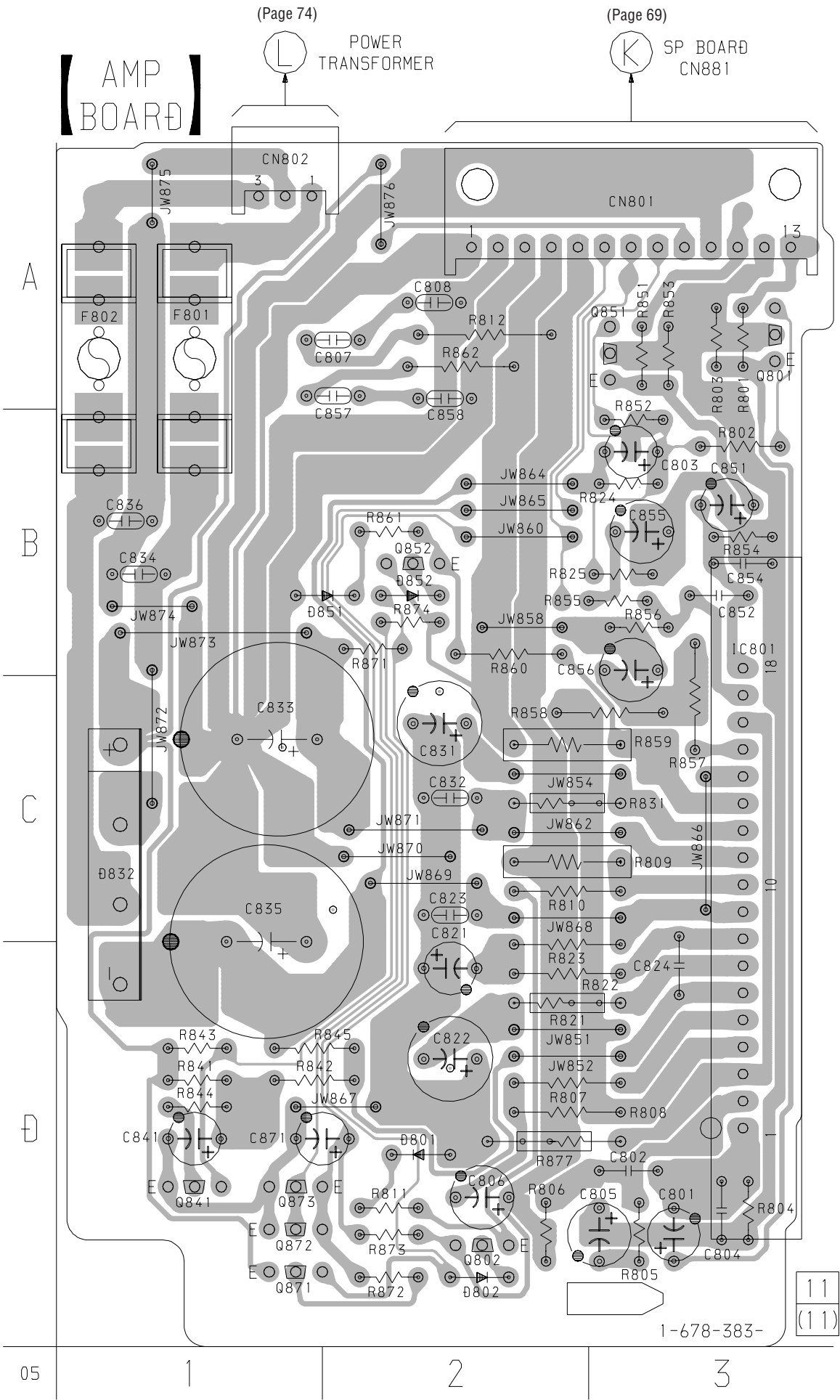
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 Δ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

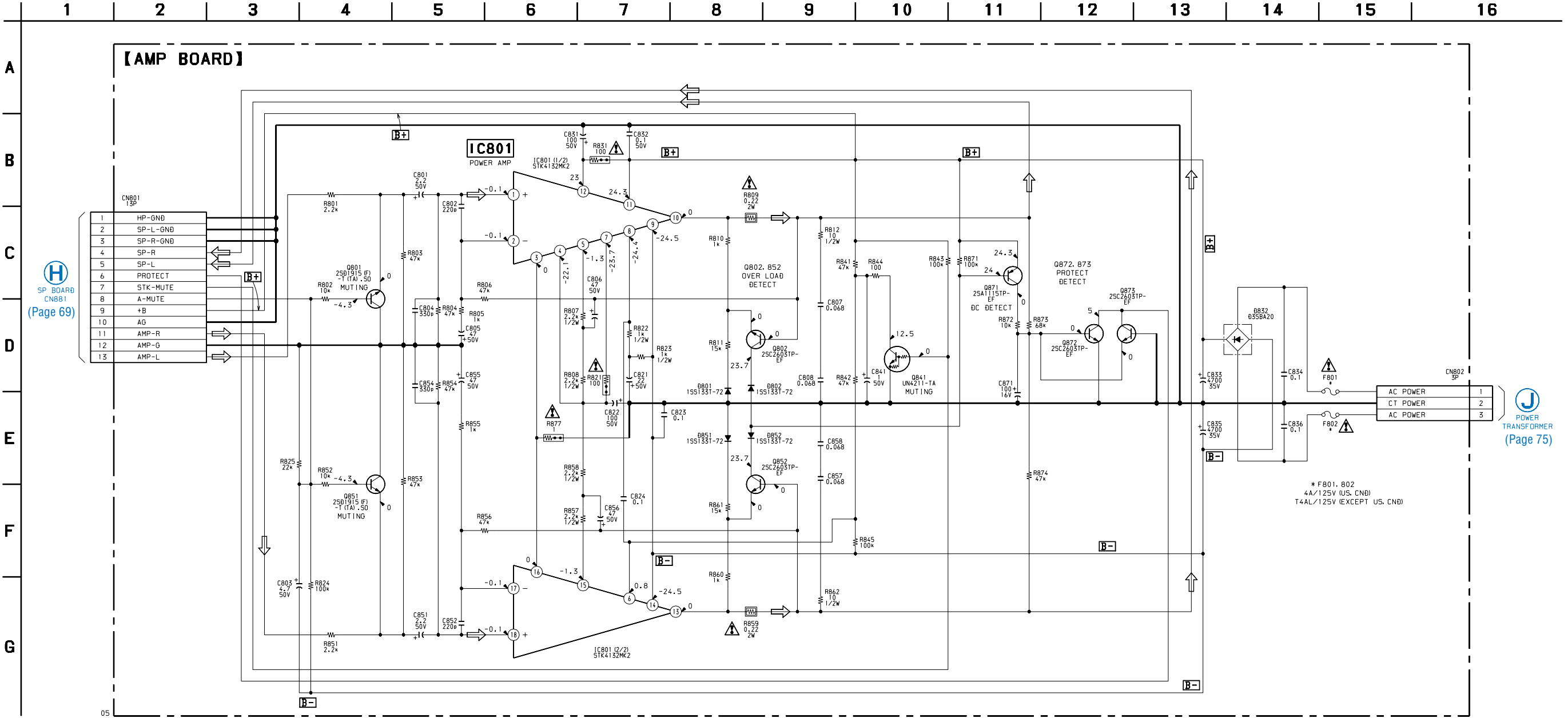
6-21. PRINTED WIRING BOARD – AMP Board – • See page 55 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D801	D-2
D802	D-2
D832	C-1
D851	B-2
D852	B-2
IC801	C-3
Q801	A-3
Q802	D-2
Q841	D-1
Q851	A-3
Q852	B-2
Q871	D-1
Q872	D-1
Q873	D-1



6-22. SCHEMATIC DIAGRAM – AMP Board –



• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

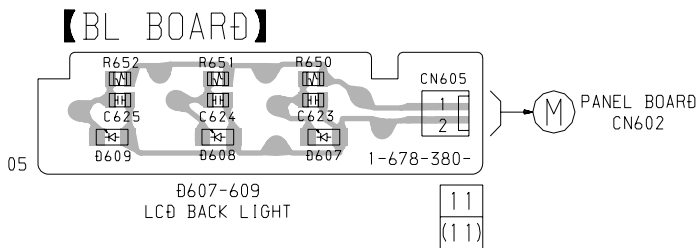
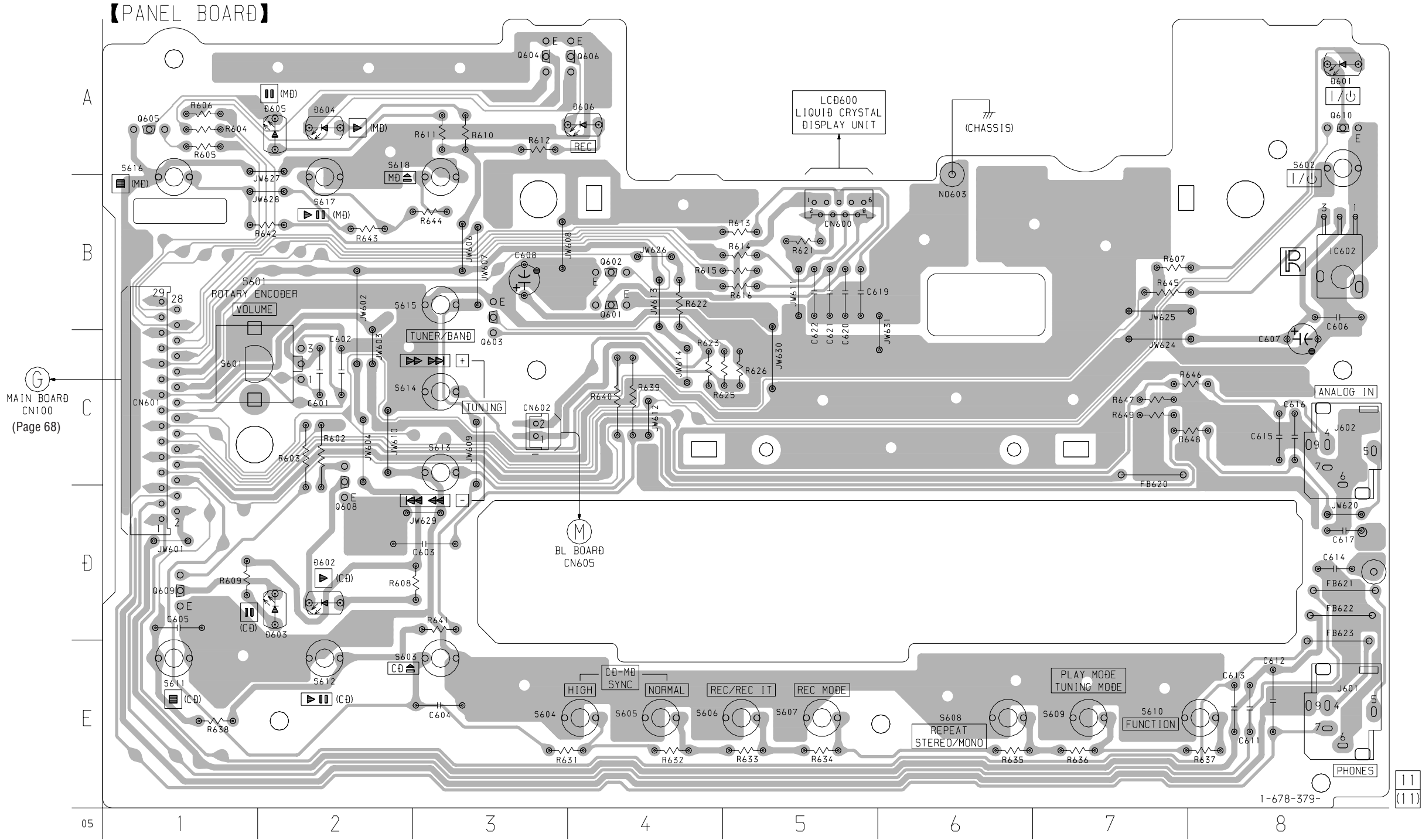
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 Δ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

6-23. PRINTED WIRING BOARDS – PANEL/BL Boards – • See page 55 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D601	A-8
D602	D-2
D603	D-2
D604	A-2
D605	A-2
D606	A-4
IC602	B-8
Q601	B-4
Q602	B-4
Q603	B-3
Q604	A-3
Q605	A-1
Q606	A-4
Q608	C-2
Q609	D-1
Q610	A-8

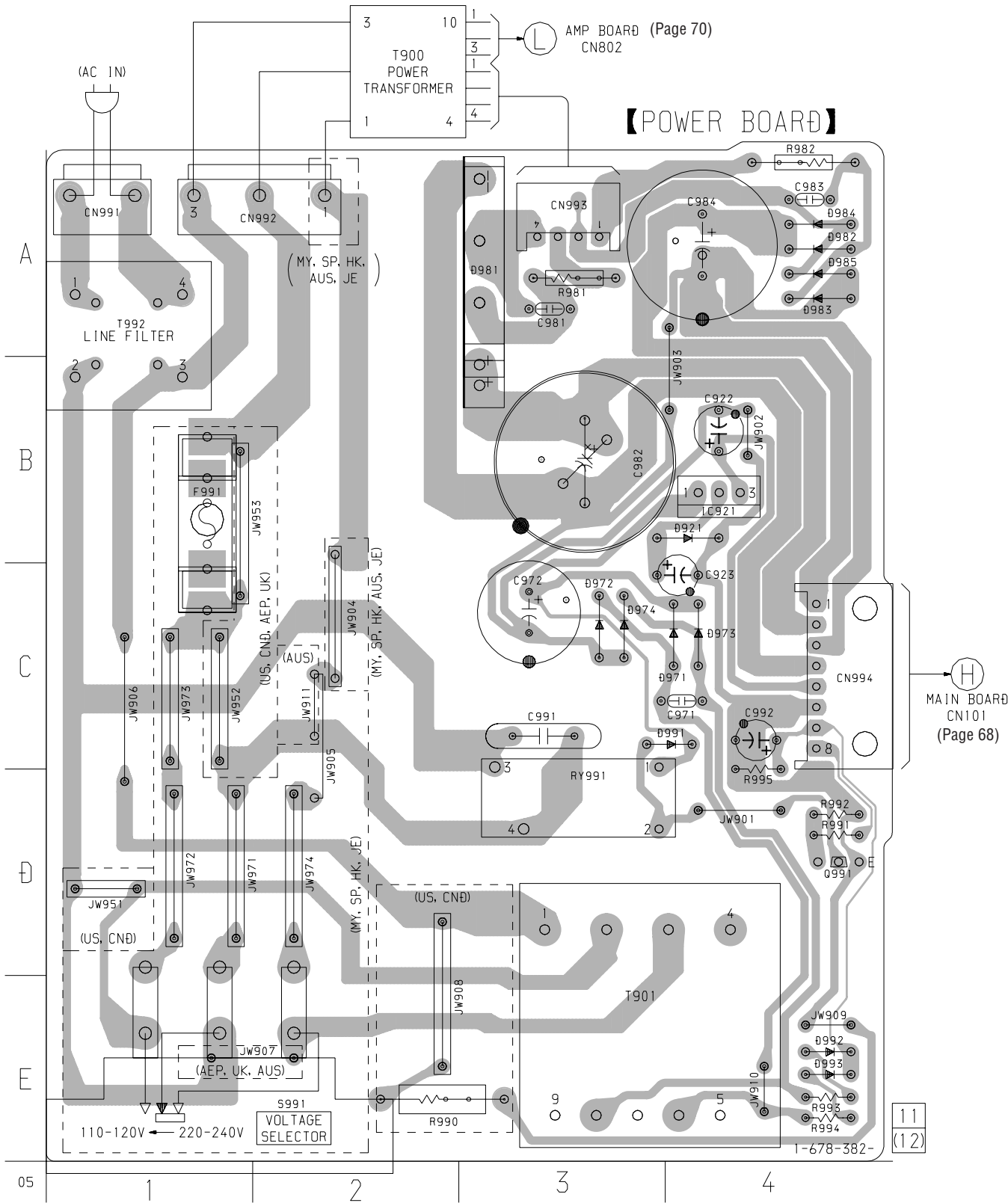


There are a few cases that the part isn't mounted in model is printed on diagrams.

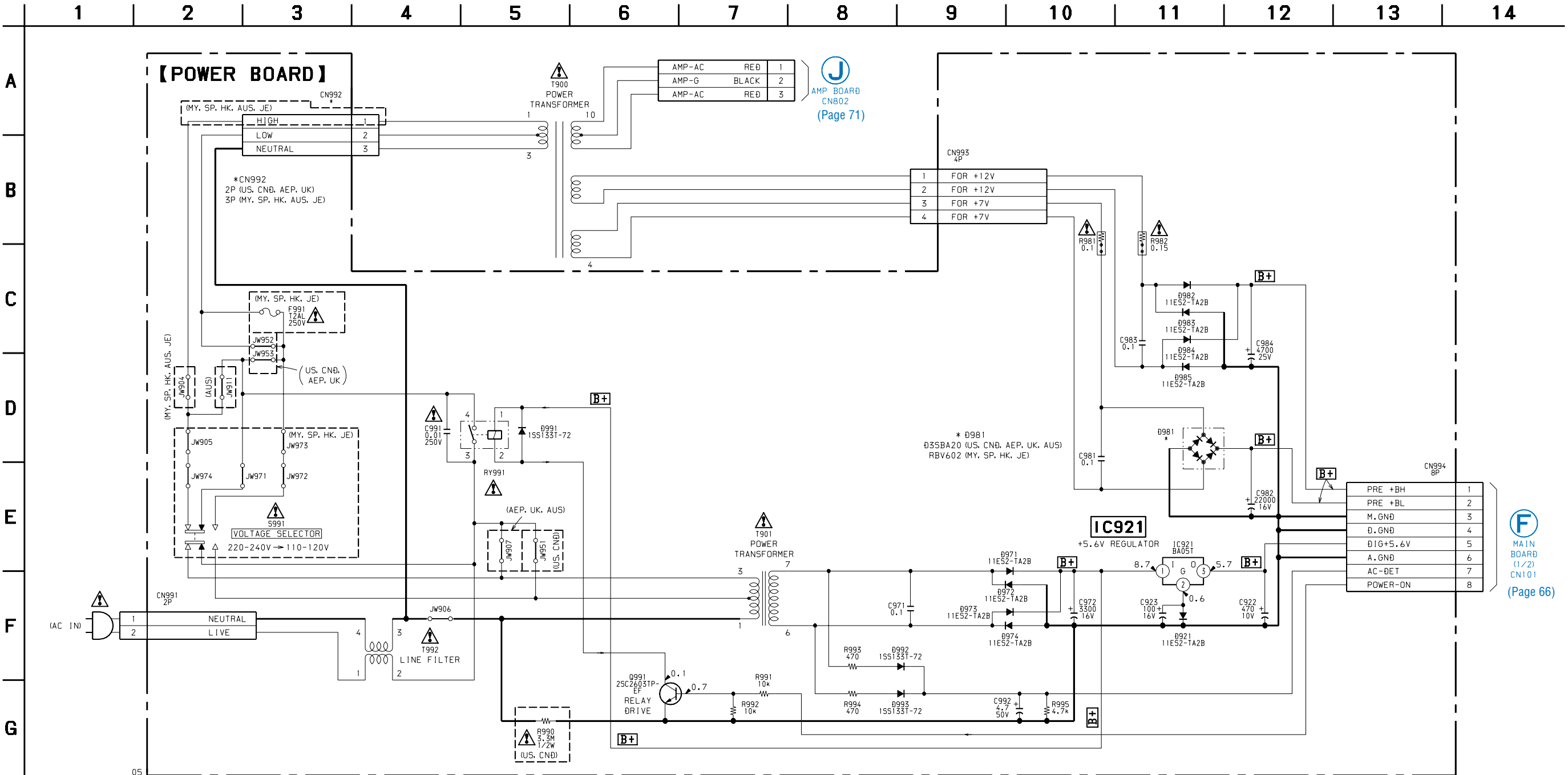
6-25. PRINTED WIRING BOARD – POWER Board – • See page 55 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D921	B-4
D971	C-4
D972	C-3
D973	C-4
D974	C-3
D981	A-3
D982	A-4
D984	A-4
D985	A-4
D991	C-4
D992	E-4
D993	E-4
IC921	B-4
Q991	D-4



6-26. SCHEMATIC DIAGRAM – POWER Board –



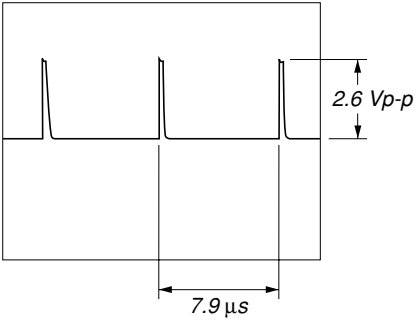
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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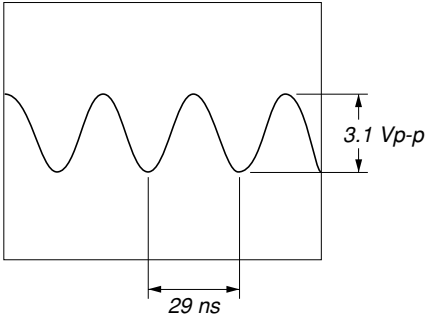
以阴影和 \triangle 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

• Waveforms
– BD (CD) Board –

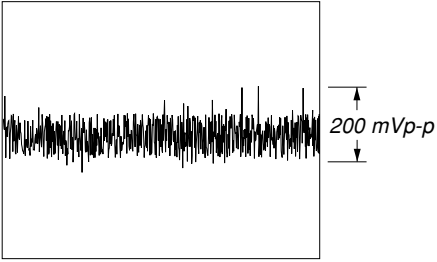
① IC101 ②⑤ (MDP) (CD PLAY mode)



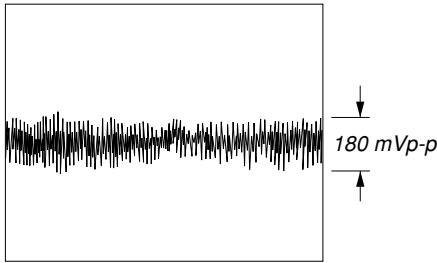
⑥ IC101 ⑦② (XTAO)



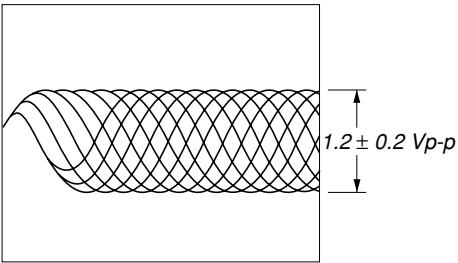
② IC101 ③⑨ (FE) (CD PLAY mode)



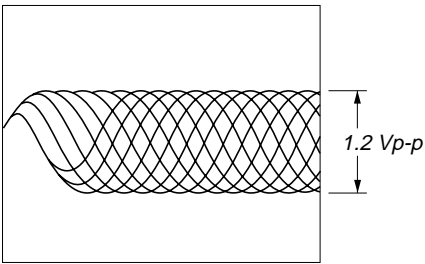
③ IC101 ④① (TE) (CD PLAY mode)



④ IC101 ④③ (RFDC) (CD PLAY mode)

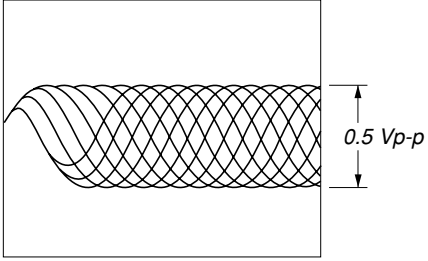


⑤ IC101 ⑤① (RFAC) (CD PLAY mode)

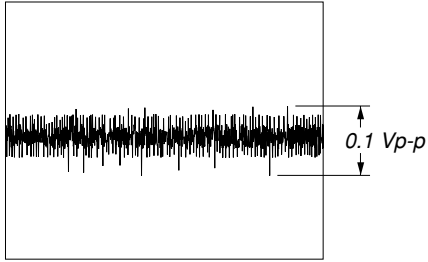


– BD (MD) Board –

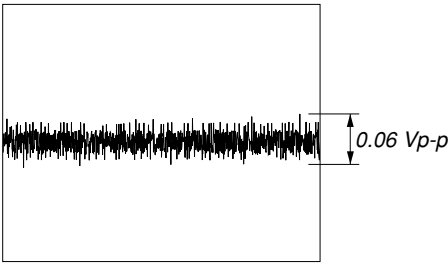
① IC101 ① (I), ② (J) (MD PLAY mode)



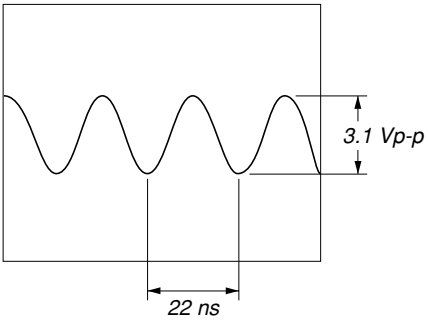
② IC101 ④ (A) (MD PLAY mode)



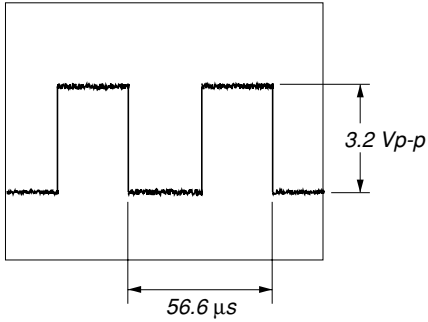
③ IC101 ⑧ (E), ⑨ (F) (MD PLAY mode)



④ IC151 ①⑥ (OSCI)

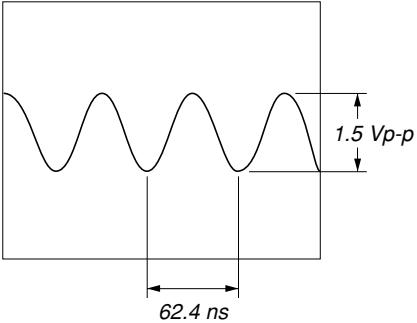


⑤ IC151 ⑨① (FS4)

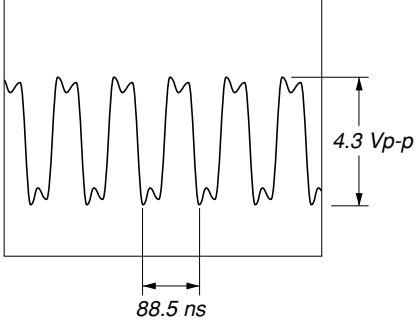


– MD DIGITAL Board –

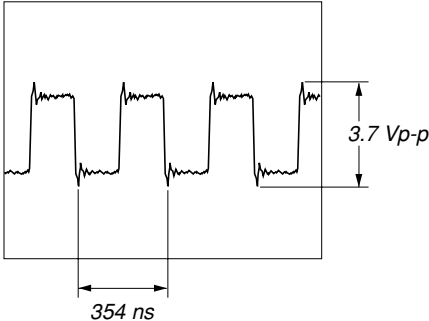
① IC1101 ③⑨ (X1)



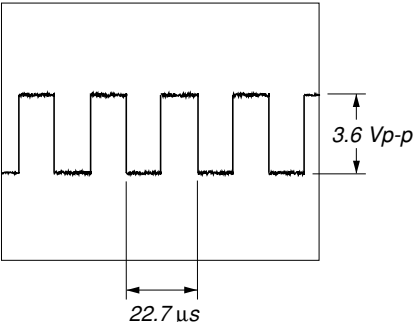
② IC1006 ②⑨ (CLKOUT)



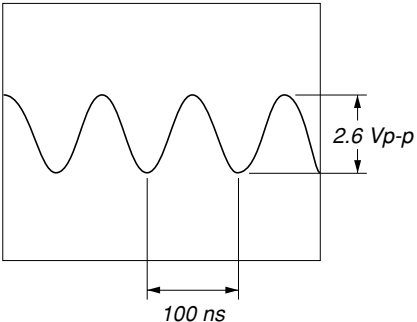
③ IC1006 ③③ (I2SBCKOUT)



④ IC1006 ③⑦ (I2SLRCKOUT)

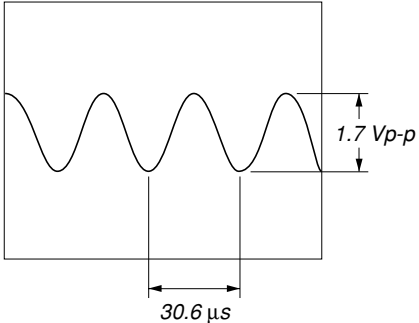


⑤ IC1001 ②② (XIN)

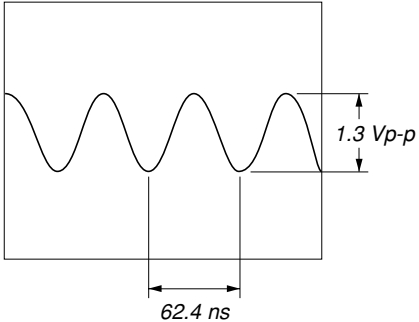


– MAIN Board –

① IC501 ③⑤ (XTIN)

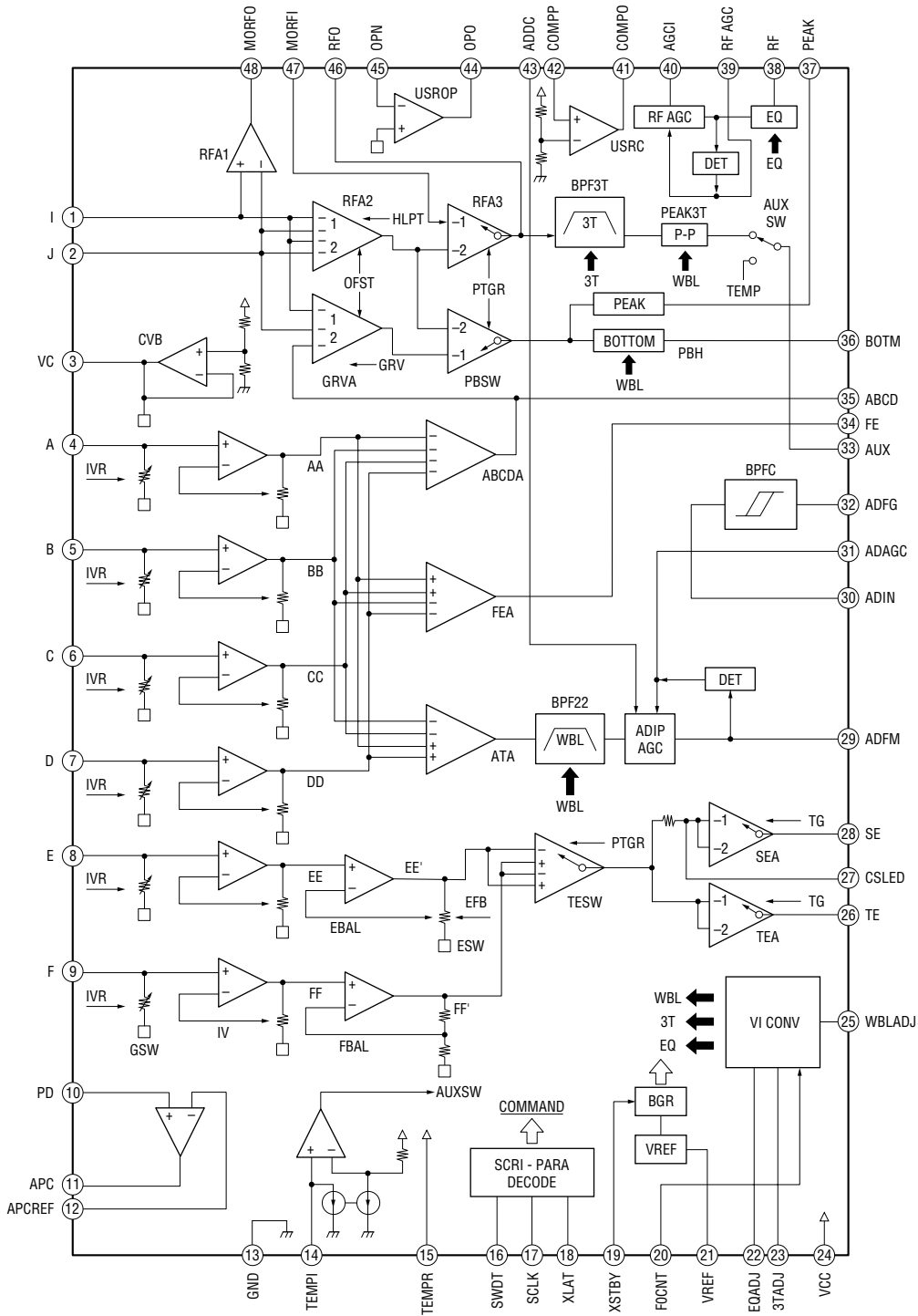


② IC501 ③⑨ (XIN)

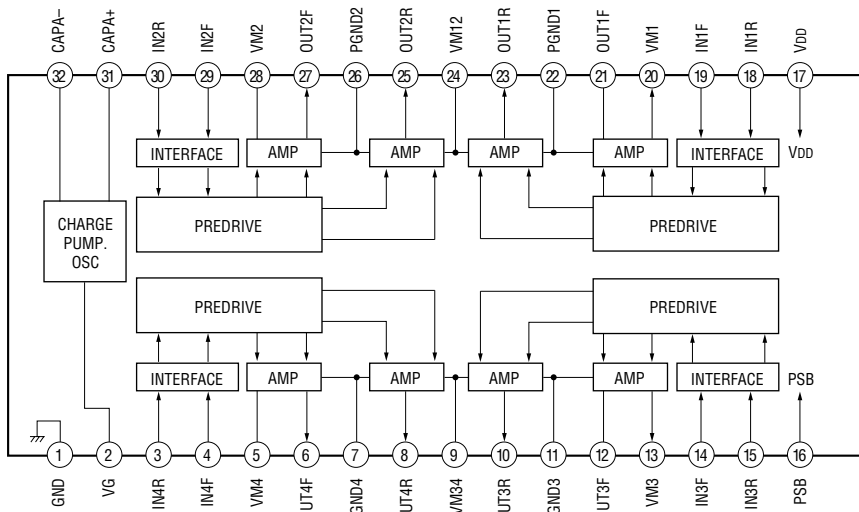


- IC Block Diagrams
- BD (MD) Board –

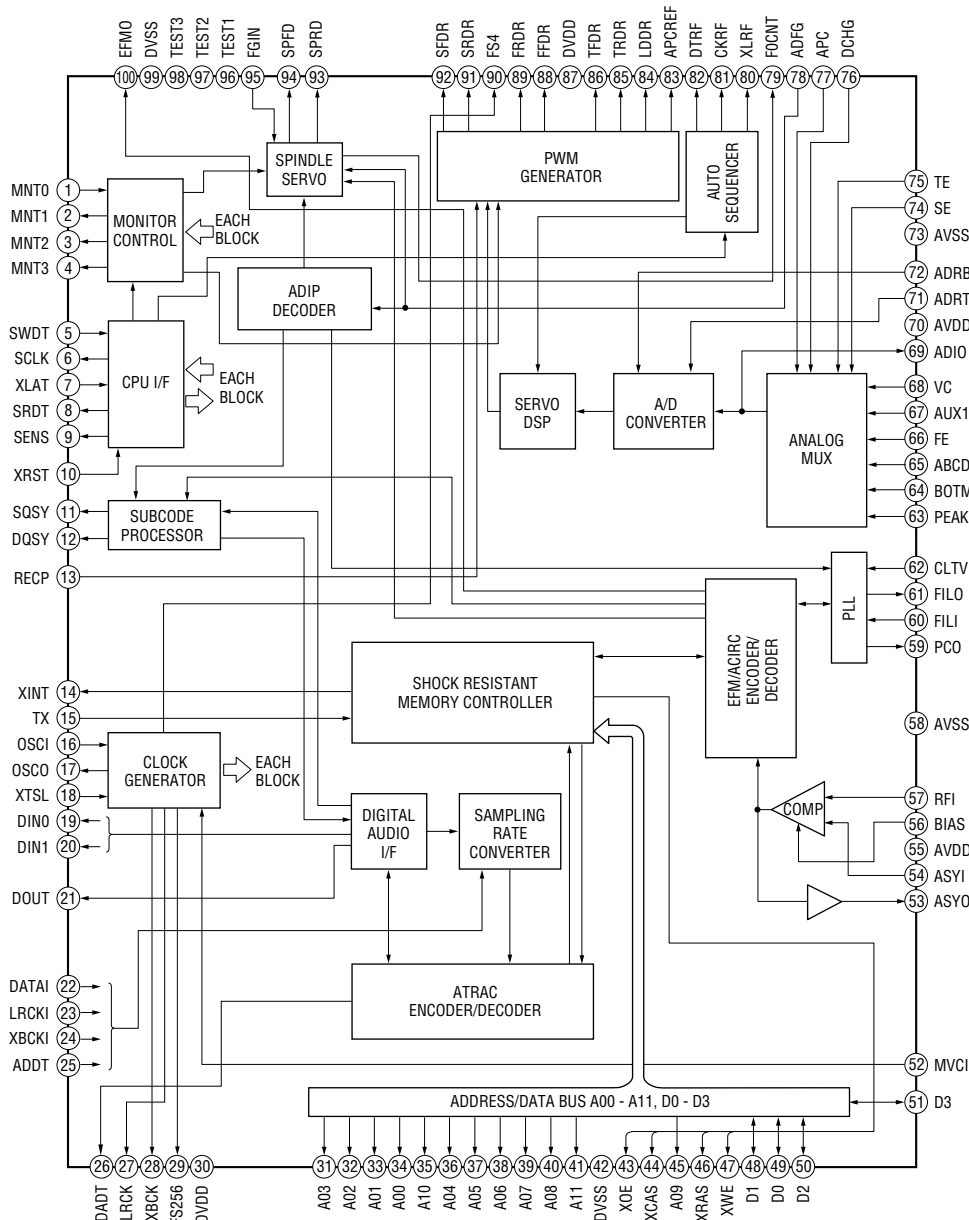
IC101 CXA2523AR



IC141 BH6511FS

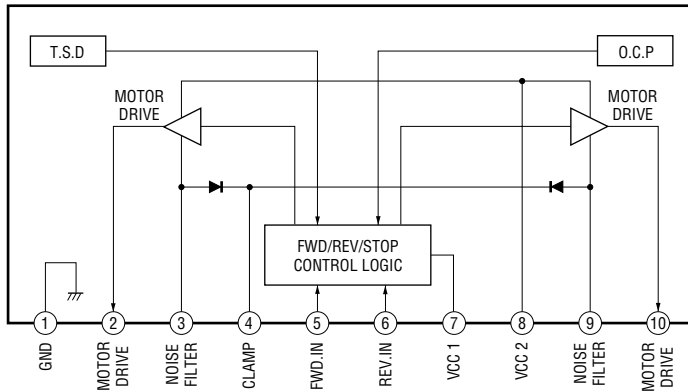


IC151 CXD2662R

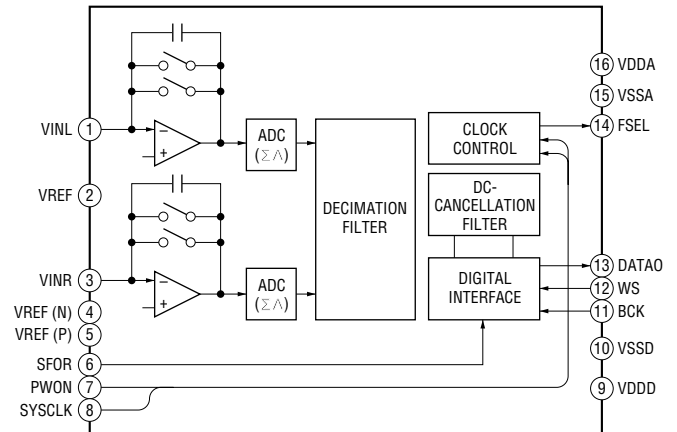


– MD DIGITAL Board –

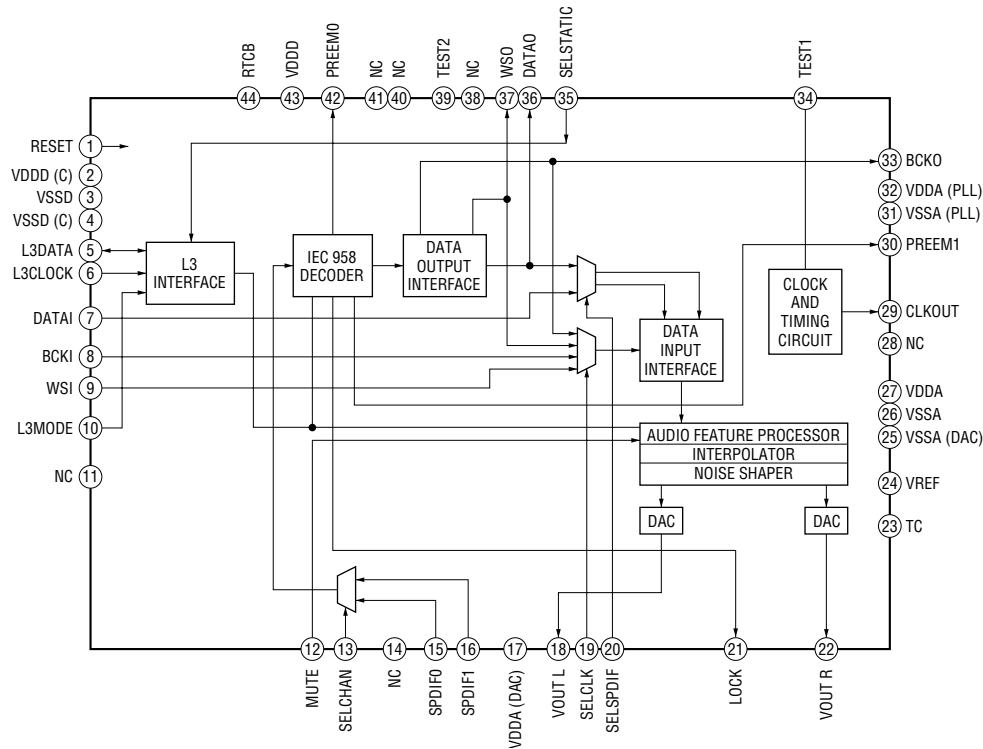
IC1004 LB1641



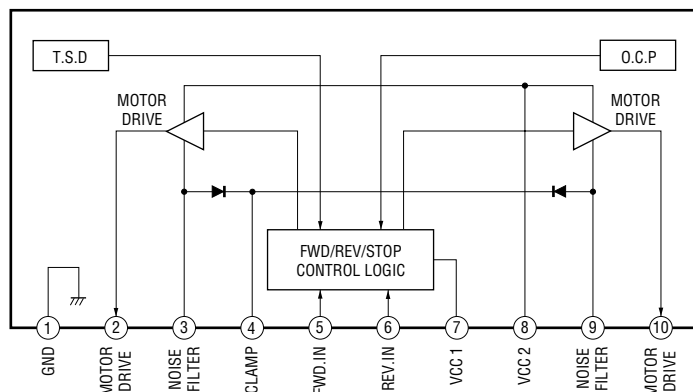
IC1005 μ DA1360TS



IC1006 μ DA1350AH

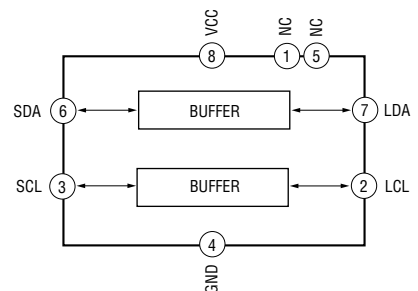


IC1102 LB1641

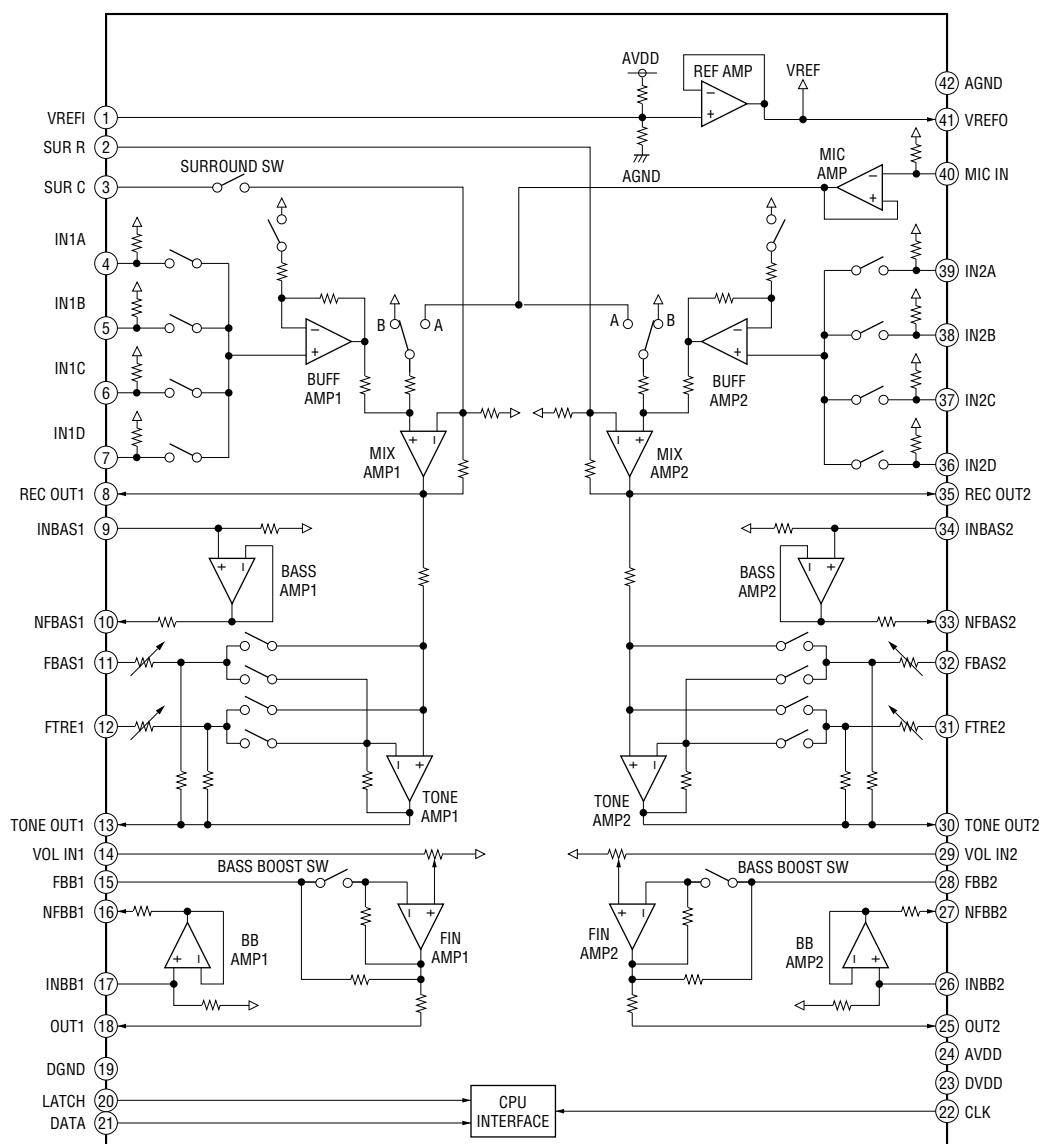


– MAIN Board –

IC103 P82B715PN

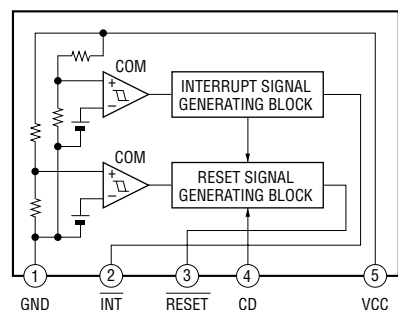


IC301 M62428AFP6000C

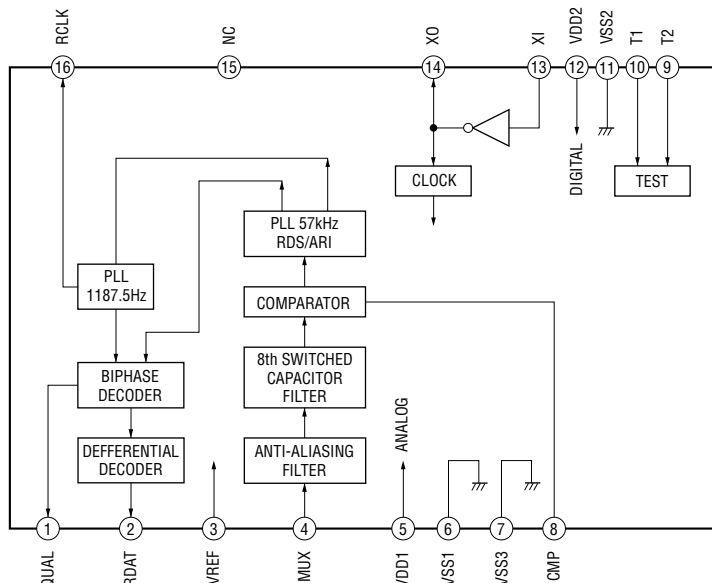


– RDS IC Board –

IC931 M62016L



IC401 BU1924F (AEP, UK models only)



6-27. IC PIN FUNCTION DESCRIPTION

• BD (MD) BOARD IC101 CXA2523AR (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Description
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input from the optical pick-up block laser diode
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input for setting laser power from the CXD2662R (IC151)
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2662R (IC151)
17	SCLK	I	Serial data transfer clock signal input from the CXD2662R (IC151)
18	XLAT	I	Serial data latch pulse signal input from the CXD2662R (IC151)
19	XSTBY	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2662R (IC151)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2662R (IC151)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2662R (IC151)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz \pm 1 kHz) output to the CXD2662R (IC151)
33	AUX	O	Auxiliary signal (I3 signal/temperature signal) output to the CXD2662R (IC151)
34	FE	O	Focus error signal output to the CXD2662R (IC151)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2662R (IC151)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2662R (IC151)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2662R (IC151)
38	RF	O	Playback EFM RF signal output to the CXD2662R (IC151)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• BD (MD) BOARD IC151 CXD2662R

(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER)

Pin No.	Pin Name	I/O	Description
1	MNT0 (FOK)	O	Focus OK signal output terminal “H” is output when focus is on (“L”: NG) Not used (open)
2	MNT1 (SHOCK)	O	Track jump detection signal output to the MD mechanism controller (IC1001)
3	MNT2 (XBUSY)	O	Busy monitor signal output to the MD mechanism controller (IC1001)
4	MNT3 (SLOCK)	O	Spindle servo lock status monitor signal output to the MD mechanism controller (IC1001)
5	SWDT	I	Writing serial data signal input from the MD mechanism controller (IC1001)
6	SCLK	I (S)	Serial data transfer clock signal input from the MD mechanism controller (IC1001)
7	XLAT	I (S)	Serial data latch pulse signal input from the MD mechanism controller (IC1001)
8	SRDT	O (3)	Reading serial data signal output to the MD mechanism controller (IC1001)
9	SENS	O (3)	Internal status (SENSE) output to the MD mechanism controller (IC1001)
10	$\overline{\text{XRST}}$	I (S)	Reset signal input from the MD mechanism controller (IC1001) “L”: reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD mechanism controller (IC1001) “L” is output every 13.3 msec Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD mechanism controller (IC1001) “L” is output every 13.3 msec Almost all, “H” is output
13	RECP	I	Laser power selection signal input from the MD mechanism controller (IC1001) “L”: playback mode, “H”: recording mode
14	XINT	O	Interrupt status output to the MD mechanism controller (IC1001)
15	TX	O	Magnetic head on/off signal output to the over write head drive (IC181)
16	OSCI	I	System clock signal (90.3168 MHz) input terminal
17	OSCO	O	System clock signal (512Fs=90.3168 MHz) output terminal Not used (open)
18	XTSL	I	Input terminal for the system clock frequency setting “L”: 45.1584 MHz, “H”: 90.3168 MHz (fixed at “H” in this set)
19	DIN0	I	Digital audio signal input terminal when recording mode Not used
20	DIN1	I	Digital audio signal input terminal when recording mode
21	DOUT	O	Digital audio signal output terminal when playback mode
22	DADTAI	I	Recording data input from the A/D converter (IC1005)
23	LRCKI	I	L/R sampling clock signal (44.1 kHz) input from the D/A converter (IC1006), A/D converter (IC1005)
24	XBCKI	I	Bit clock signal (2.8224 MHz) input from the D/A converter (IC1006), A/D converter (IC1005)
25	ADDI	I	Recording data input terminal Not used (fixed at “L”)
26	DADT	O	Playback data output terminal Not used (open)
27	LRCK	O	L/R sampling clock signal (44.1 kHz) output terminal Not used (open)
28	XBCK	O	Bit clock signal (2.8224 MHz) output terminal Not used (open)
29	FS256	O	Clock signal (11.2896 MHz) output terminal Not used (open)
30	DVDD	—	Power supply terminal (+3.3V) (digital system)
31 to 34	A03 to A00	O	Address signal output to the D-RAM (IC152)
35	A10	O	Address signal output to the D-RAM (IC152)
36 to 40	A04 to A08	O	Address signal output to the D-RAM (IC152)
41	A11	O	Address signal output to the external D-RAM Not used (open)
42	DVSS	—	Ground terminal (digital system)
43	$\overline{\text{XOE}}$	O	Output enable signal output to the D-RAM (IC152) “L” active

* I (S) stands for schmitt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

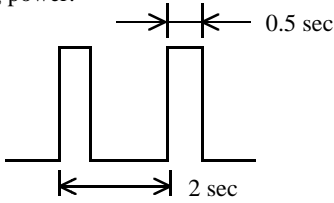
Pin No.	Pin Name	I/O	Description
44	$\overline{\text{XCAS}}$	O	Column address strobe signal output to the D-RAM (IC152) “L” active
45	A09	O	Address signal output to the D-RAM (IC152)
46	$\overline{\text{XRAS}}$	O	Row address strobe signal output to the D-RAM (IC152) “L” active
47	$\overline{\text{XWE}}$	O	Write enable signal output to the D-RAM (IC152) “L” active
48	D1	I/O	Two-way data bus with the D-RAM (IC152)
49	D0	I/O	
50	D2	I/O	
51	D3	I/O	
52	MVCI	I (S)	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
53	ASYO	O	Playback EFM full-swing output terminal
54	ASYI	I (A)	Playback EFM asymmetry comparator voltage input terminal
55	AVDD	—	Power supply terminal (+3.3V) (analog system)
56	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
57	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC101)
58	AVSS	—	Ground terminal (analog system)
59	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
61	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
62	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
63	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101)
64	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101)
65	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC101)
66	FE	I (A)	Focus error signal input from the CXA2523AR (IC101)
67	AUX1	I (A)	Auxiliary signal (I ₃ signal/temperature signal) input from the CXA2523AR (IC101)
68	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC101)
69	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
70	AVDD	—	Power supply terminal (+3.3V) (analog system)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
72	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
73	AVSS	—	Ground terminal (analog system)
74	SE	I (A)	Sled error signal input from the CXA2523AR (IC101)
75	TE	I (A)	Tracking error signal input from the CXA2523AR (IC101)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	TEST4	I	Input terminal for the test Not used (fixed at “H”)
78	ADFG	I (S)	ADIP duplex FM signal (22.05 kHz \pm 1 kHz) input from the CXA2523AR (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523AR (IC101)
80	XLRF	O	Serial data latch pulse signal output to the CXA2523AR (IC101)
81	CKRF	O	Serial data transfer clock signal output to the CXA2523AR (IC101)
82	DTRF	O	Writing serial data output to the CXA2523AR (IC101)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	TEST0	O	Input terminal for the test Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (–) output to the BH6511FS (IC141)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC141)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC141)

* I (S) stands for schmitt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Description
89	FRDR	O	Focus servo drive PWM signal (–) output to the BH6511FS (IC141)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X’tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal (–) output to the BH6511FS (IC141)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC141)
93	SPRD	O	Spindle servo drive PWM signal (–) output to the BH6511FS (IC141)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC141)
95	FGIN	I (S)	Input terminal for the test (fixed at “L”)
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

* I (S) stands for schmitt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• MD DIGITAL BOARD IC1001 M30805SGP (MD MECHANISM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1, 2	—	O	Not used (open)
3	LVL1	O	L-ch level output terminal Not used (open)
4	LVL0	O	R-ch level output terminal Not used (open)
5 to 7	—	O	Not used (open)
8	MUTE	O	Muting control signal output to the D/A converter (IC1006) “L”: muting
9	DARST	O	Reset signal output to the D/A converter (IC1006) “H”: reset
10	SLICERSEL	O	IEC958 input selection signal output to the D/A converter (IC1006) “L”: MD, “H”: CD
11	LD-LOW	O	Loading motor drive voltage control signal output for the loading motor driver (IC1004) “H” active
12	LDIN	O	Motor control signal output to the loading motor driver (IC1004) “L” active *1
13	LDOUT	O	Motor control signal output to the loading motor driver (IC1004) “L” active *1
14	MOD	O	Laser modulation select signal output to the HF module switch circuit Stop: “L”, Playback power: “H”, Recording power: 
15	BYTE	I	External data bus line byte selection signal input “L”: 16 bit, “H”: 8 bit (fixed at “L”)
16	CNVSS	I	Mode setting terminal “H”: processor mode (fixed at “H”)
17	X-CIN	I	Sub system clock input terminal Not used (open)
18	X-COUT	O	Sub system clock output terminal Not used (open)
19	RESET	I	System reset signal input from the reset signal generator (IC931) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
20	XOUT	O	Main system clock output terminal (10 MHz)
21	VSS0	—	Ground terminal
22	XIN	I	Main system clock input terminal (10 MHz)
23	VCC0	—	Power supply terminal (+3.3V)
24	NMI	I	Non-maskable interrupt input terminal “L” active (fixed at “H” in this set)
25	DQSY	I	Digital In U-bit CD format subcode Q sync (SCOR) input from the CXD2662R (IC151) “L” is input every 13.3 msec Almost all, “H” is input
26	P.DOWN	I	Power down detection signal input from the system controller (IC501) “L”: power down, normally: “H”
27	SQSY	I	Subcode Q sync (SCOR) input from the CXD2662R (IC151) “L” is input every 13.3 msec Almost all, “H” is input
28	NC	O	Not used (open)
29	LDON	O	Laser diode on/off control signal output to the automatic power control circuit “H”: laser on
30	LIMIT-IN	I	Detection input from the sled limit-in detect switch (S101) The optical pick-up is inner position when “L”

*1 Loading motor (M103) control

Terminal \ Mode	LOADING	EJECT	BRAKE	RUN IDLE
LDIN (pin ⑫)	“L”	“H”	“L”	“H”
LDOUT (pin ⑬)	“H”	“L”	“L”	“H”

Pin No.	Pin Name	I/O	Description
31	C2-PWM-B	O	Not used (open)
32	XINT	I	Interrupt status input from the CXD2662R (IC151)
33	—	O	Not used (open)
34	XELT	I	Not used (open)
35	WR-PWR	O	Laser power select signal output to the CXD2662R (IC151) and HF module switch circuit “L”: playback mode, “H”: recording mode
36	I2CCLK	I/O	Shift clock signal input/output terminal for the IIC bus
37	I2CDAT	I/O	Data input/output terminal for the IIC bus
38	SWDT	O	Writing data output to the CXD2662R (IC151)
39	VCC1	—	Power supply terminal (+3.3V)
40	SRDT	I	Reading data input from the CXD2662R (IC151)
41	VSS1	—	Ground terminal
42	SCLK	O	Serial clock signal output to the CXD2662R (IC151)
43	REC-SW	I	Detection input from the recording position of over write head (HR901) detect switch (S105) “L” recording mode
44	CLIPDTO	O	Serial data output terminal
45	CLIPDTI	I	Serial data input terminal
46	CLIPCK	O	Serial clock signal output terminal Not used (open)
47	$\overline{\text{DIG-RST}}$	O	Reset signal output to the CXD2662R (IC151) and BH6511FS (IC152) “L”: reset
48	SENS	I	Internal status (SENSE) input from the CXD2662R (IC151)
49	PLAY-SW	I	Detection input from the playback position of over write head (HR901) detect switch (S104) “L” playback mode
50	XLAT	O	Serial data latch pulse signal output to the CXD2662R (IC151)
51	OUT-SW	I	Detection input from the loading-out detect switch (S103) “L” at a load-out position, others: “H”
52	—	I	Not used (fixed at “H”)
53	—	O	Not used (open)
54	—	I	Not used (fixed at “H”)
55	—	O	Not used (open)
56	MNT2 (XBUSY)	I	Busy signal input from the CXD2662R (IC151)
57	VSS2	—	Ground terminal
58	MNT1 (SHOCK)	I	Track jump detection signal input from the CXD2662R (IC151)
59	VCC2	—	Power supply terminal (+3.3V)
60	EEP-WP	O	Writing protect signal output to the EEPROM (IC195)
61	SDA	I/O	Two-way data bus with the EEPROM (IC195)
62	BCLK/ALE/CLKO	O	Not used (open)
63	OE	O	Data reading strobe signal output to the flash memory (IC1002)
64	$\overline{\text{BHE/CASH}}$	O	Not used (open)
65	$\overline{\text{WE}}$	O	Writing enable signal output to the flash memory (IC1002) “L” active
66	SCL	O	Clock signal output to the EEPROM (IC195)
67	REFLECT	I	Detection input from the disc reflection rate detect switch (S102-1) “L”: high reflection rate disc, “H”: low reflection rate disc
68	PROTECT	I	REC-proof claw detect input from the protect detect switch (S102-2) “H”: write protect
69	$\overline{\text{CS0}}$	O	Chip select signal output to the flash memory (IC1002)
70	$\overline{\text{CS1}}$	O	Chip select signal output terminal Not used (open)
71. 72	—	—	Not used (open)
73	A19	O	Address signal output to the flash memory (IC1002)

Pin No.	Pin Name	I/O	Description
74	VCC3	—	Power supply terminal (+3.3V)
75	A18	O	Address signal output to the flash memory (IC1002)
76	VSS3	—	Ground terminal
77 to 85	A17 to A9	O	Address signal output to the flash memory (IC1002)
86 to 89	SEL3 to SEL0	I	Model destination setting input terminal
90	WP	O	Writing protect signal output to the flash memory (IC1002)
91	VCC4	—	Power supply terminal (+3.3V)
92	A8	O	Address signal output to the flash memory (IC1002)
93	VSS4	—	Ground terminal
94 to 101	A7 to A0	O	Address signal output to the flash memory (IC1002)
102 to 113	D15 to D4	I/O	Two-way data bus with the flash memory (IC1002)
114	CLIP SEL	O	Not used (open)
115	I2CBUSY	I/O	Busy signal input/output for the IIC bus
116	DALOCK	I	Lock signal input from the D/A converter (IC1006)
117	LINE-MUTE	O	Audio line muting on/off control signal output
118	ADPDWN	O	Power down detection signal output to the A/D converter (IC1005)
119 to 122	D3 to D0	I/O	Two-way data bus with the flash memory (IC1002)
123	SPDIF-CUT	O	MD/CD digital input selection signal output terminal Not used (open)
124	OPTSEL	O	CD/optical digital input selection signal output to the digital signal selector (IC1008)
125 to 129	—	O	Not used (open)
130	VSS5	—	Ground terminal
131	—	O	Not used (open)
132	VCC5	—	Power supply terminal (+3.3V)
133	OP-LEVEL	I	Optical pick-up voltage input from the automatic power control circuit
134 to 139	—	O	Not used (open)
140	AVSS	—	Ground terminal (for analog system)
141	—	O	Not used (open)
142	VREF	I	Reference voltage (+3.3V) input terminal (for A/D converter)
143	AVCC	—	Power supply terminal (+3.3V) (for analog system)
144	—	O	Not used (open)

• MD DIGITAL BOARD IC1101 μ PDSS3033AYGF-M05-3BA (CD MECHANISM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	DRV DAT	O	Serial data output to a FL driver Not used (open)
2	DRV CLK	O	Serial data transfer clock signal output to a FL driver Not used
3	I2C DAT	I	Data input/output terminal for the IIC bus
4	NC	O	Not used (open)
5	I2C CLK	I	Shift clock signal input/output terminal for the IIC bus
6	GND	—	Ground terminal
7	DATA	O	Serial data output to the CD block
8	CLK	O	Serial data transfer clock signal output to the CD block
9	EVDD	—	Power supply terminal (+5V)
10	EVSS	—	Ground terminal
11	XLT	O	Serial data latch pulse output to the CD block
12	SENSE	I	Internal status detection monitor input from the CD block
13	LDON	O	Laser diode on/off control signal output to the CD block
14	LPH	O	Laser power control signal output terminal Not used (open)
15	SUBQ	I	Subcode Q data input from the CD block
16	NC	O	Not used (open)
17	SQCLK	O	Subcode Q data reading clock signal output to the CD block
18	CTRL1	O	Disc speed selection (normal/double speed) signal output to the CD block
19	X4	O	Disc speed selection (normal/quadruple speed) signal output to the CD block
20	8CM	O	CD disc size select (8cm/12cm) signal output terminal Not used (open)
21	GND/VPP	—	Ground terminal
22	SPINDLEMUTE	O	Spindle motor muting control signal output to the CD block “H”: muting on
23 to 28	NC	O	Not used (open)
29	$\overline{\text{AMUTE}}$	O	Audio muting on/off control signal output terminal “L”: muting on Not used (open)
30	$\overline{\text{DACMUTE}}$	O	Muting on/off control signal output to the D/A converter (IC1006) “L”: muting on
31	BDPWR	O	Power supply for the CD block on/off control signal output “H”: power on
32	$\overline{\text{BDRST}}$	O	Reset signal output to the CD block
33	$\overline{\text{FUNC ST}}$	O	Function select signal output terminal Not used (open)
34	$\overline{\text{RESET}}$	I	Reset signal input from the system controller (IC501)
35	XT1	I	Sub system clock input terminal Not used (fixed at “L”)
36	XT2	O	Sub system clock output terminal Not used (open)
37	CHEMICON	I	Connected to the external capacitor
38	X2	O	Main system clock output terminal (16MHz)
39	X1	I	Main system clock input terminal (16MHz)
40	VSS	—	Ground terminal
41	VDD	—	Power supply terminal (+5V)
42	NC	—	Not used (open)
43 to 45	ENCODE0 to ENCODE2	I	Jog dial pulse input terminal Not used (fixed at “H”)
46	NC	O	Not used (open)
47	TRAYSENCE3	I	Detection input from the disc tray address detect rotary encoder Not used (fixed at “H”)
48	$\overline{\text{CNT-SW}}$	I	Detection input from the count detect switch Not used (fixed at “H”)
49	$\overline{\text{PRTC-SW}}$	I	Detection input from the protect switch Not used (fixed at “H”)
50, 51	TRAYSENS1, TRAYSENS2	I	Detection input from the disc tray address detect rotary encoder Not used (fixed at “H”)
52	$\overline{\text{OUT-SW}}$	I	Detection input from the tray open/close detect switch (S1) “L”: when tray is open













Pin No.	Pin Name	I/O	Description
53	$\overline{\text{IN-SW}}$	I	Detection input from the tray open/close detect switch (S1) “L”: when tray is close
54	$\overline{\text{LOD POS}}$	O	CD loading motor (M201) control signal output to the motor driver IC (IC1102) “L” active *1
55	$\overline{\text{LOD NEG}}$	O	CD loading motor (M201) control signal output to the motor driver IC (IC1102) “L” active *1
56	$\overline{\text{CLP POS}}$	O	Motor control signal output to the motor driver IC “L” active Not used (open)
57	$\overline{\text{CLP NEG}}$	O	Motor control signal output to the motor driver IC “L” active Not used (open)
58	BVDD	—	Power supply terminal (+5V) (for digital system)
59	BVSS	—	Ground terminal (for digital system)
60 to 72	NC	O	Not used (open)
73	FUN	O	Fun motor on/off control signal output terminal “H”: fun motor on Not used (open)
74	AVDD	—	Power supply terminal (+5V)
75	AVSS	—	Ground terminal
76	AVREF	I	Reference voltage (+5V) input terminal
77 to 80	KEY0 to KEY3	I	Key input terminal (A/D input) Not used (fixed at “H”)
81 to 83	SEL0 to SEL2	I	Model destination setting terminal (A/D input)
84	TEL	I	Tracking error level detection input terminal Not used (open)
85	SEL3	I	Model (CD mechanism deck) destination setting terminal (A/D input)
86	DISC-SENS	I	Detection input from the disc in detect sensor (A/D input) “H”: disc in Not used (open)
87	MECHA-JIGU	I	Not used (open)
88	$\overline{\text{ADJ}}$	I	Setting terminal for the CD test mode “L”: CD test mode Normally: fixed at “H”
89	$\overline{\text{I2CHELP}}$	I	Busy signal input for the IIC bus
90	$\overline{\text{I2CHELP}}$	I	Busy signal input for the IIC bus
91	SCOR	I	Subcode sync (S0+S1) detection signal input from the CD block
92	NC	O	Not used (open)
93	$\overline{\text{AC-CUT}}$	I	Power off signal input from the system controller (IC501)
94, 95	JOG0, JOG1	I	Rotary encoder jog dial pulse input terminal Not used (fixed at “L”)
96	NC	O	Not used (open)
97	$\overline{\text{LEDLAT}}$	O	Serial data latch pulse output to a FL driver Not used
98	$\overline{\text{DRVCS}}$	I	Chip select signal output to a FL driver Not used
99	$\overline{\text{DRVRST}}$	I	Reset signal output to a FL driver “L”: reset Not used
100	GND	—	Ground terminal

*1 Loading motor (M201) control

Terminal \ Mode	LOADING	EJECT	BRAKE	RUN IDLE
$\overline{\text{LOD NEG}}$ (pin 55)	“L”	“H”	“L”	“H”
$\overline{\text{LOD POS}}$ (pin 54)	“H”	“L”	“L”	“H”

• MAIN BOARD IC501 μ PDSS3033AYGF-M11-3BA (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	GEQ DATA	O	Serial data output to the M62428AFP (IC301)
2	GEQ CLK	O	Serial data transfer clock signal output to the M62428AFP (IC301)
3	IIC DAT	I/O	Data input/output terminal for the IIC bus
4	CANT USE	O	Not used (fixed at “L”)
5	IIC CLK	I/O	Shift clock signal input/output terminal for the IIC bus
6	CANT USE	I	Not used (fixed at “L”)
7	LCD DATA	O	Display serial data output to the liquid crystal display (LCD600)
8	LCD CLK	O	Display serial data transfer clock signal output to the liquid crystal display (LCD600)
9	EVDD	—	Power supply terminal (+5V)
10	EVSS	—	Ground terminal
11, 12	MOTOR1, MOTOR2	O	Motor drive signal output terminal Not used (open)
13	LCD CLEAR	O	Reset signal output to the liquid crystal display (LCD600) “L”: reset
14	LCD CE	O	Serial data latch pulse signal output to the liquid crystal display (LCD600) “L”: data output
15	KB DATA	I	Key board data input terminal Not used (fixed at “L”)
16	KB CLK OUT	O	Key board data transfer clock signal output terminal Not used (open)
17	KB CLK	I	Key board data reading clock signal input terminal Not used (fixed at “L”)
18	IIC HELP	I/O	Busy signal input/output for the IIC bus
19, 20	MODEL2, MODEL1	I	Model Destination setting terminal
21	VPP	O	Not used
22	ST MUTE	O	Tuner muting on/off control signal output to the FM/AM tuner unit
23	ST STEREO	I	FM stereo detection signal input from the FM/AM tuner unit “L”: stereo
24	ST TUNED	I	Tuning detection signal input from the FM/AM tuner unit “L”: tuned, “H”: detuned
25	ST CE	O	PLL serial chip enable signal output to the FM/AM tuner unit
26	TA->ST DATA	O	PLL serial data output to the FM/AM tuner unit
27	ST->TA DATA	I	PLL serial data input from the FM/AM tuner unit
28	ST CLK	O	PLL serial data transfer clock signal output to the FM/AM tuner unit
29	ST-1	O	Headphone muting control signal output terminal Not used (open)
30	SOFT CHK	O	For soft check terminal Normally open
31	LCD ON/OFF	O	Power supply for liquid crystal display (LCD600) on/off control terminal
32	PROTECT	O	Speaker output over load detection signal input “L”: over load
33	DEVICE1	I	Not used (fixed at “L”)
34	RESET	I	System reset signal input from the reset signal generator (IC941) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
35	XTIN	I	Sub system clock input terminal (32.768 kHz)
36	XTOUT	O	Sub system clock output terminal (32.768 kHz)
37	REGC	I	Connected to the external capacitor
38	XOUT	O	Main system clock output terminal (16 MHz)
39	XIN	I	Main system clock input terminal (16 MHz)
40	VSS	—	Ground terminal
41	VDD	—	Power supply terminal (+5V)
42	CLK OUT	O	Not used (open)
43	LINE MUTE	O	Line muting on/off control signal output terminal “L”: muting on
44	STK MUTE	O	Audio muting on/off control signal output to the power amplifier “L”: muting on
45	SPK RELAY	O	Speaker on/off relay (RY881) control signal output “L”: speaker off

Pin No.	Pin Name	I/O	Description
46	MD/CD POWER	O	Power down detection signal output to the MD mechanism controller (IC1001) and CD mechanism controller (IC1101)
47	TR RELAY	O	Standby relay (RY991) control signal output “L”: speaker off
48	RECMUTE	O	Muting on/off control signal output of tape output signal “L”: muting on
49	DIMMER	O	LCD back light on/off control signal output “H”: LED on
50	GC POWER	O	Not used (open)
51	KBD CHK	I	Key board check signal input terminal Not used (fixed at “L”)
52	LED MD-PAUSE	O	LED drive signal output of the  (MD) indicator (D605) “H”: LED on
53	LED MD-PLAY	O	LED drive signal output of the  (MD) indicator (D604) “H”: LED on
54	LED CD-PAUSE	O	LED drive signal output of the  (CD) indicator (D603) “H”: LED on
55	LED CD-PLAY	O	LED drive signal output of the  (CD) indicator (D602) “H”: LED on
56	LED MD-REC	O	LED drive signal output of the REC indicator (D606) “H”: LED on
57	LED STANDBY	O	LED drive signal output of the I/⏻ indicator (D601) “H”: LED on
58	BVDD	—	Power supply terminal (+5V)
59	BVSS	—	Ground terminal
60	LED DATA	O	Serial data output terminal for LED driver Not used (open)
61	LED CLK	O	Serial data transfer clock signal output terminal for LED driver Not used (open)
62	LED CE1	O	Chip select signal output terminal for LED driver Not used (open)
63	FAN	O	Fan motor drive signal output “H”: fan motor on
64	LED CLEAR	O	Reset signal output terminal for LED driver Not used (open)
65, 66	FUNC1, FUNC2	O	Function selection signal output terminal Not used (open)
67	HEADPHONE IN	I	Headphone in detection signal input “H”: headphone in
68	ENC VOL A	I	Jog dial pulse input from the rotary encoder (S601 VOLUME) A phase input
69	ENC VOL B	I	Jog dial pulse input from the rotary encoder (S601 VOLUME) B phase input
70	ENC JOG 1A	I	Jog dial pulse input from the rotary encoder A phase input Not used (fixed at “L”)
71	ENC JOG 1B	I	Jog dial pulse input from the rotary encoder B phase input Not used (fixed at “L”)
72, 73	DEVICE3, DEVICE2	—	Not used (fixed at “L”)
74	AVDD	—	Power supply terminal (+5V)
75	AVSS	—	Ground terminal
76	AVREF	I	Reference voltage (+5V) input terminal
77, 78	LID SW1, LID SW2	I	Switch input terminal Not used (fixed at “L”)
79 to 82	DIST 1 to DIST 4	I	Model destination setting terminal
83	LEVEL-L	I	L-ch level input terminal Not used (fixed at “L”)
84	LEVEL-R	I	L-ch level input terminal Not used (fixed at “L”)
85	KEY1	I	Key input terminal (A/D input) S602, S613, S614 (I/⏻,  TUNING –,  TUNING + keys input)
86	KEY2	I	Key input terminal (A/D input) S603 to S610 (CD  , CD-MD SYNC NORMAL, CD-MD SYNC HIGH, REC/REC IT, REPEAT STEREO/MONO, PLAY MODE, TUNING MODE, FUNCTION keys input)
87	KEY3	I	Key input terminal (A/D input) S611 to S618 ( (CD),  (CD),  (MD),  (MD), MD  keys input)
88	KEY4	I	Key input terminal (A/D input) Not used (fixed at “H”)
89	NMI	I	Non-maskable interrupt input terminal Fixed at “L” in this set
90	KBD CLK	I	Key board data reading clock signal input terminal Not used (fixed at “H”)
91	KEY RM INT	I	Not used (fixed at “H”)

Pin No.	Pin Name	I/O	Description
92	PC POWER	I	Power on request signal input from the PC LINK jack (CN104)
93	SIRCS	I	Remote control signal input from the remote control receiver (IC602)
94	AC CUT IN	I	AC power off detection signal input terminal Not used (open)
95	RDS DATA	I	RDS serial data input from the RDS decoder (IC401) Used for the AEP, UK models
96	RDS CLK	I	RDS serial data transfer clock signal input from the RDS decoder (IC401) Used for the AEP, UK models
97	SELF WRITE IN	I	Not used (open)
98	OUT	O	Not used (open)
99	CLK	I	Not used (open)
100	GEQ CE	O	Serial data latch pulse signal output to the M62428AFP (IC301)

Ver. 1.1

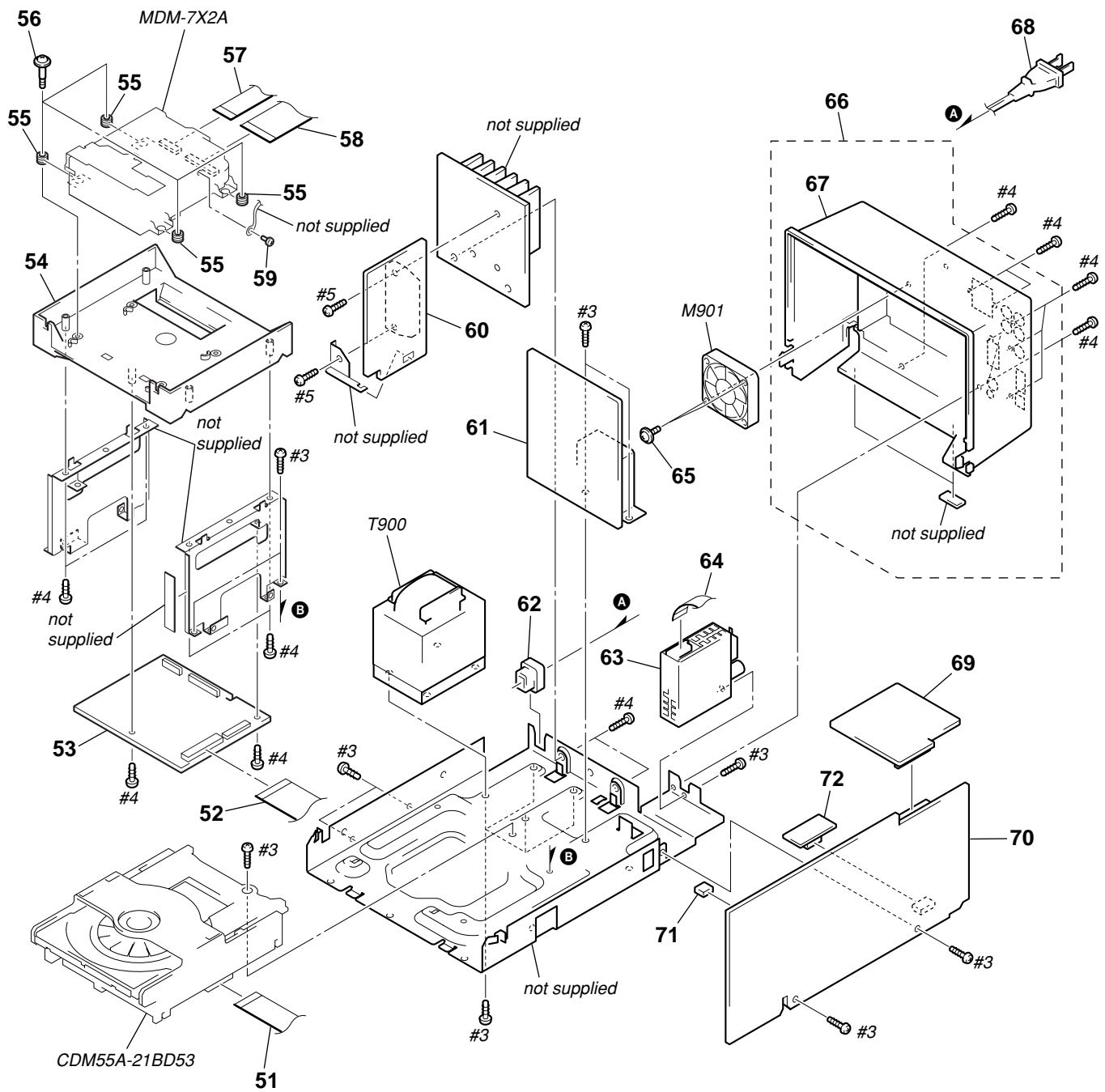
SP : Singapore model

- 以阴影和 \triangle 标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。

Exploded view diagram of the S601 car stereo unit showing its installation into a car's dashboard. The diagram includes numbered callouts for various components: 1. Push-button, 2. Dash kit, 3. Screws, 4. Mounting plate, 5. Screws, 6. Screws, 7. Screws, 8. Dash kit, 9. Screws, 10. Dash kit, 11. Dash kit, 12. Dash kit, 13. Dash kit, 14. Dash kit, 15. Screws, 16. Dash kit, 17. Dash kit. Text labels indicate 'not supplied' for several parts and 'included in panel board' for others.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
11	4-228-719-01	LID (LCD HOLDER)	
12	1-678-380-11	BL BOARD	
13	4-228-099-01	HOLDER (LCD)	
14	A-4473-535-A	PANEL BOARD, COMPLETE	
15	4-951-620-01	SCREW (2.6X8), +BVTP	
16	1-792-828-11	WIRE (FLAT TYPE) (29 CORE)	
17	4-228-098-01	PANEL, LOADING	
LCD600	1-804-027-11	DISPLAY PANEL, LIQUID CRYSTAL	

(2) CHASSIS SECTION



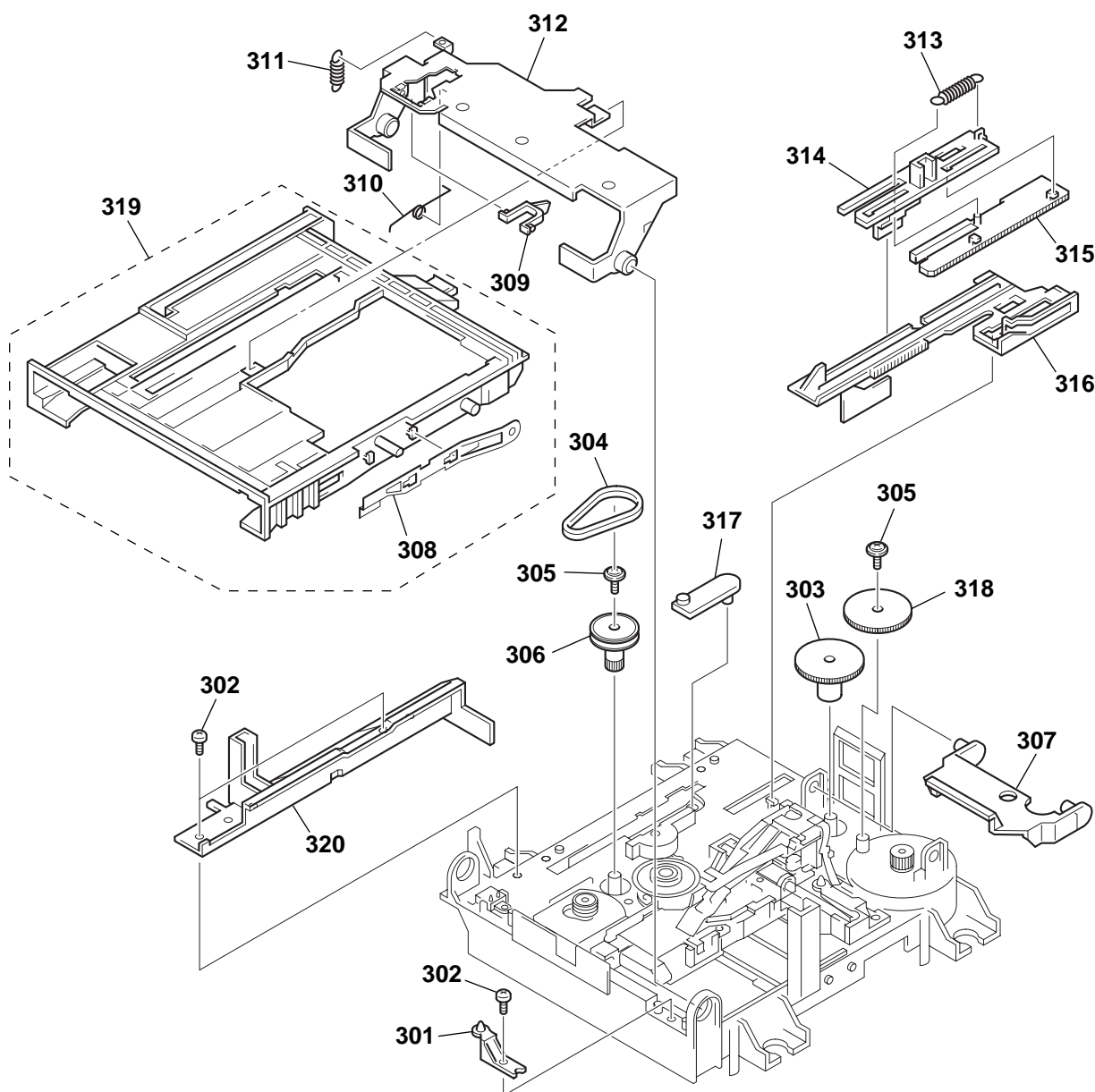
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	1-792-831-11	WIRE (FLAT TYPE) (21 CORE)		66	X-4953-287-1	PANEL ASSY, BACK (MY, SP, HK, JE)	
52	1-773-315-11	WIRE (FLAT TYPE) (31 CORE)		66	X-4953-289-1	PANEL ASSY, BACK (AUS)	
53	A-4473-547-A	MD DIGITAL BOARD, COMPLETE		67	4-228-095-11	PANEL, BACK (AEP, UK)	
54	4-228-097-01	BASE (MDM)		67	4-228-095-21	PANEL, BACK (US, CND)	
55	4-228-689-01	INSULATOR		67	4-228-095-51	PANEL, BACK (AUS)	
56	4-228-684-01	SCREW (+BVTPWH M3), STEP		67	4-228-111-31	PANEL, BACK (MY, SP, HK, JE)	
57	1-792-830-11	WIRE (FLAT TYPE) (17 CORE)		△ 68	1-696-847-11	CORD, POWER (AUS)	
58	1-792-829-11	WIRE (FLAT TYPE) (27 CORE)		△ 68	1-769-744-11	CORD, POWER (HK)	
59	4-231-113-01	SCREW (1.7X3), BTN		△ 68	1-777-071-21	CORD, POWER (AEP, UK, MY, SP, JE)	
60	A-4473-538-A	AMP BOARD, COMPLETE		△ 68	1-783-531-21	CORD, POWER (US, CND)	
61	A-4473-545-A	POWER BOARD, COMPLETE (AEP, UK)		69	1-678-384-11	SP BOARD	
61	A-4473-550-A	POWER BOARD, COMPLETE (US, CND)		70	A-4473-543-A	MAIN BOARD, COMPLETE (AEP, UK)	
61	A-4473-553-A	POWER BOARD, COMPLETE (MY, SP, HK, JE)		70	A-4473-549-A	MAIN BOARD, COMPLETE (US, CND)	
61	A-4475-165-A	POWER BOARD, COMPLETE (AUS)		70	A-4473-552-A	MAIN BOARD, COMPLETE (MY, SP, HK, AUS)	
62	3-703-244-00	BUSHING (2104), CORD (EXCEPT JE)		70	A-4475-166-A	MAIN BOARD, COMPLETE (JE)	
* 62	3-703-571-12	BUSHING (S) (4516), CORD (JE)		71	1-569-972-21	SOCKET, SHORT 2P	
63	1-693-407-23	TUNER PACK (US, CND)		72	1-679-169-11	RDS IC BOARD (AEP, UK)	
63	1-693-472-21	TUNER PACK (JE)		M901	1-698-997-11	FAN, D. C.	
63	1-693-473-41	TUNER PACK (AEP, UK, MY, SP, HK, AUS)		△ T900	1-435-569-11	TRANSFORMER, POWER (AEP, UK)	
64	1-777-353-11	WIRE (FLAT TYPE) (15 CORE)		△ T900	1-435-570-11	TRANSFORMER, POWER (MY, SP, HK, AUS, JE)	
65	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		△ T900	1-435-571-11	TRANSFORMER, POWER (US, CND)	
66	X-4953-285-1	PANEL ASSY, BACK (AEP, UK)					
66	X-4953-286-1	PANEL ASSY, BACK (US, CND)					

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

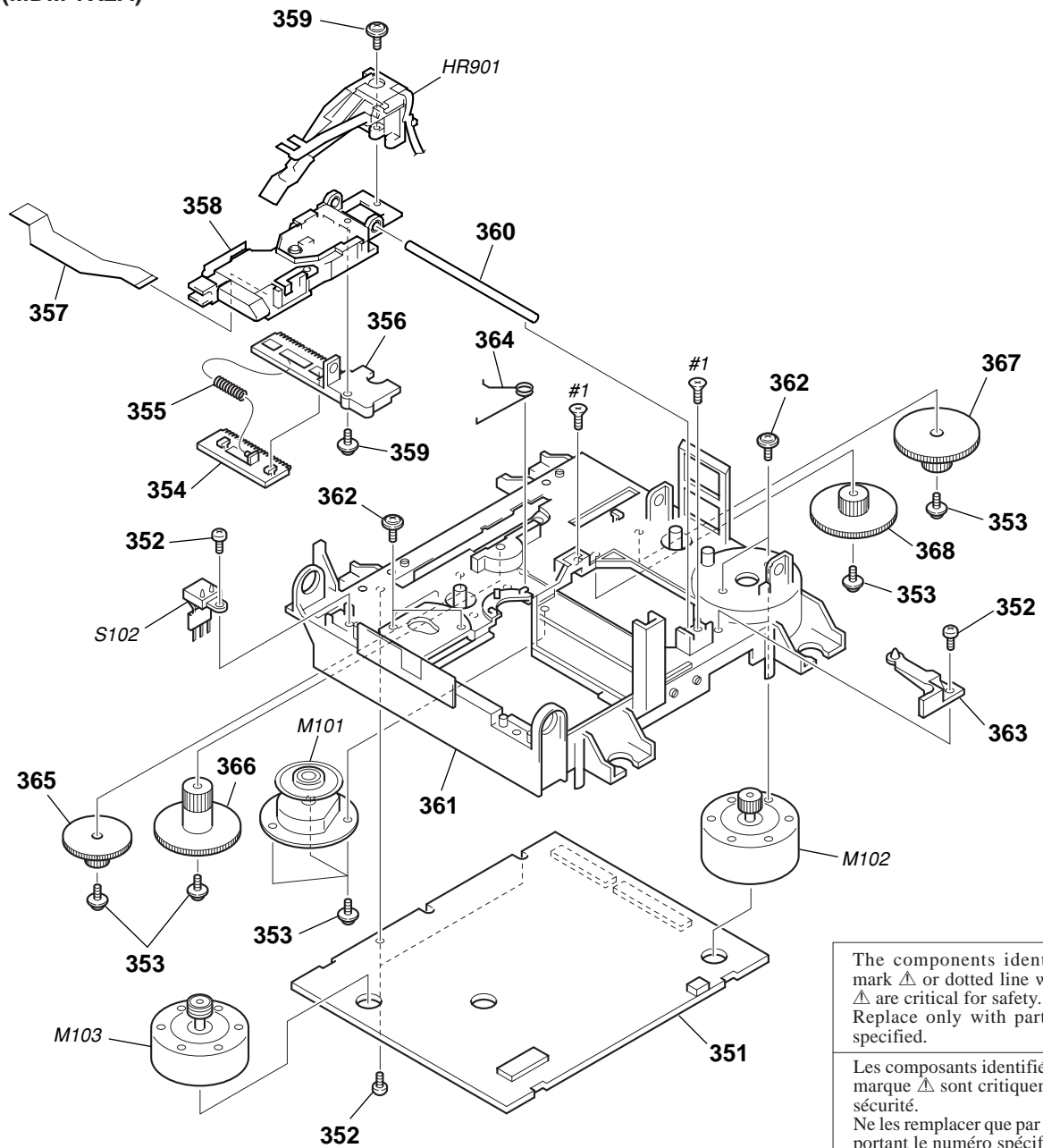
以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

(3) MD MECHANISM DECK SECTION-1
(MDM-7X2A)



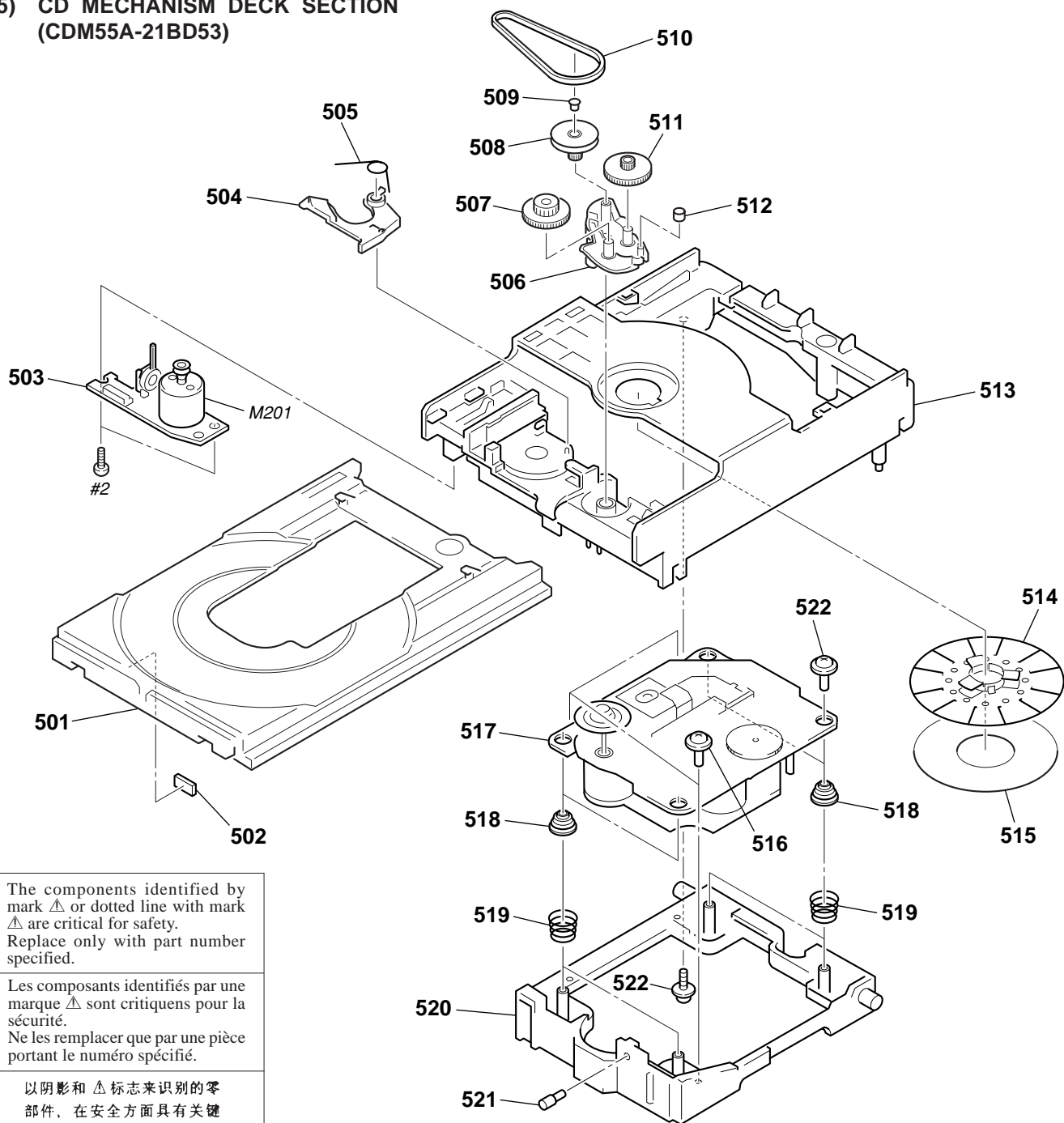
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 301	4-996-267-01	BASE (BU-D)		311	4-227-012-01	SPRING (HOLDER), TENSION	
302	4-908-618-21	SCREW (+BTP) (2X6)		312	4-227-019-02	PLATE (HOLDER), RETAINER	
303	4-227-007-01	GEAR (SB)		313	4-227-013-01	SPRING (EJ), TENSION	
304	4-227-025-01	BELT (LOADING)		314	4-226-996-01	LIMITTER (EJ)	
305	3-372-761-01	SCREW (M1.7), TAPPING		315	4-226-995-01	SLIDER (EJ)	
306	4-227-002-01	GEAR, PULLEY		316	4-226-997-01	SLIDER	
307	4-226-999-01	LEVER (HEAD)		317	4-226-998-01	LEVER (CHG)	
308	X-4952-665-1	SPRING (SHT) ASSY, LEAF		318	4-227-006-01	GEAR (SA)	
309	4-228-923-01	LOCK (HOLDER)		319	A-4672-973-A	HOLDER ASSY	
310	4-229-533-02	SPRING (STOPPER), TORSION		320	4-226-994-01	GUIDE (L)	

(4) MD MECHANISM DECK SECTION-2
(MDM-7X2A)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	A-4725-056-A	BD (MD) BOARD, COMPLETE		363	4-226-990-01	BASE (BU-A)	
352	4-908-618-21	SCREW (+BTP) (2X6)		364	4-230-716-01	SPRING (SPDL), TORSION	
353	3-372-761-01	SCREW (M1.7), TAPPING		365	4-227-004-01	GEAR (LC)	
354	4-226-993-01	RACK		366	4-227-005-01	GEAR (LD)	
355	4-227-014-01	SPRING (RACK), COMPRESSION		367	4-227-008-01	GEAR (SC)	
356	4-226-992-01	BASE, SL		368	4-227-009-01	GEAR (SD)	
357	1-678-514-11	FLEXIBLE BOARD		HR901	1-500-670-11	HEAD, OVER WRITE	
Δ 358	A-4672-976-A	OPTICAL PICK-UP KMS-262A/J1N		M101	A-4735-029-A	MOTOR ASSY, SPINDLE (for MD)	
359	4-988-560-01	SCREW (+P 1.7X6)		M102	A-4672-900-A	MOTOR ASSY, SLED (for MD)	
360	4-996-265-01	SHAFT, MAIN		M103	A-4672-975-A	MOTOR ASSY, LOADING (for MD)	
361	4-226-989-01	CHASSIS		S102	1-771-957-11	SWITCH, PUSH (2 KEY) (REFLECT RATE DETECT, PROTECT DETECT)	
362	4-211-036-01	SCREW (1.7X2.5), +PWH					

(5) CD MECHANISM DECK SECTION
(CDM55A-21BD53)



The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 \triangle 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
501	4-220-231-01	TRAY (CDM)		513	4-220-230-01	CHASSIS	
502	4-925-315-31	DAMPER		514	X-4952-522-2	PULLEY (AT) ASSY	
503	1-674-336-12	LOADING BOARD		515	4-220-951-02	SHEET (KH)	
504	4-220-229-01	LEVER (SW)		516	4-227-899-21	SCREW (DIA. 12), FLOATING	
505	4-220-239-01	SPRING, TORSION		\triangle 517	A-4677-295-A	BASE UNIT (BU-21BD53)	
506	4-220-233-01	CAM (CDM55)		518	4-230-386-01	INSULATOR (BU21)	
507	4-220-238-01	GEAR (B)		519	4-230-389-01	SPRING, CONE COIL	
508	4-220-234-01	PULLEY (LDG)		520	4-228-353-01	HOLDER (55-BU21)	
509	4-227-598-01	SPACER (55)		521	4-229-358-01	SHAFT (BU21)	
510	4-221-816-01	BELT (CDM55)		522	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
511	4-220-237-01	GEAR (A)		M201	A-4672-771-A	MOTOR (LD) ASSY (LOADING) (for CD)	
512	4-221-815-01	ROLLER					

SECTION 8 ELECTRICAL PARTS LIST

AMP

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Abbreviation
AUS : Australian model JE : Tourist model
CND : Canadian model MY : Malaysia model
HK : Hong Kong model SP : Singapore model

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS
uF: μ F
- COILS
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 Δ 标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-4473-538-A	AMP BOARD, COMPLETE *****		D851	8-719-911-19	DIODE 1SS119-25	
	1-533-293-11	FUSE HOLDER		D852	8-719-911-19	DIODE 1SS119-25	
		< CAPACITOR >				< FUSE >	
C801	1-126-045-11	ELECT 2.2uF 20% 50V		Δ F801	1-532-504-31	FUSE (T4AL/125V) (EXCEPT US, CND)	
C802	1-162-286-31	CERAMIC 220PF 10% 50V		Δ F801	1-533-419-11	FUSE, GLASS CYLINDRICAL (DIA.5) (4A/125V) (US, CND)	
C803	1-126-963-11	ELECT 4.7uF 20% 50V		Δ F802	1-532-504-31	FUSE (T4AL/125V) (EXCEPT US, CND)	
C804	1-162-288-31	CERAMIC 330PF 10% 50V		Δ F802	1-533-419-11	FUSE, GLASS CYLINDRICAL (DIA.5) (4A/125V) (US, CND)	
C805	1-126-051-11	ELECT 47uF 20% 50V				< IC >	
C806	1-126-051-11	ELECT 47uF 20% 50V		IC801	8-749-920-13	IC STK4132MK2	
C807	1-136-495-11	FILM 0.068uF 5% 50V				< TRANSISTOR >	
C808	1-136-495-11	FILM 0.068uF 5% 50V		Q801	8-729-044-08	TRANSISTOR 2SD1915 (F) -T (TA). SO	
C821	1-126-965-11	ELECT 22uF 20% 50V		Q802	8-729-620-05	TRANSISTOR 2SC2603-EF	
C822	1-126-052-11	ELECT 100uF 20% 50V		Q841	8-729-900-80	TRANSISTOR DTC114ES	
C823	1-136-165-00	FILM 0.1uF 5% 50V		Q851	8-729-044-08	TRANSISTOR 2SD1915 (F) -T (TA). SO	
C824	1-164-159-11	CERAMIC 0.1uF 50V		Q852	8-729-620-05	TRANSISTOR 2SC2603-EF	
C831	1-126-052-11	ELECT 100uF 20% 50V					
C832	1-136-165-00	FILM 0.1uF 5% 50V		Q871	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C833	1-127-734-51	ELECT MELF 4700uF 20% 35V		Q872	8-729-620-05	TRANSISTOR 2SC2603-EF	
C834	1-136-165-00	FILM 0.1uF 5% 50V		Q873	8-729-620-05	TRANSISTOR 2SC2603-EF	
C835	1-127-734-51	ELECT MELF 4700uF 20% 35V				< RESISTOR >	
C836	1-136-165-00	FILM 0.1uF 5% 50V		R801	1-249-421-11	CARBON 2.2K 5% 1/4W	
C841	1-126-160-11	ELECT 1uF 20% 50V		R802	1-249-429-11	CARBON 10K 5% 1/4W	
C851	1-126-045-11	ELECT 2.2uF 20% 50V		R803	1-249-437-11	CARBON 47K 5% 1/4W	
C852	1-162-286-31	CERAMIC 220PF 10% 50V		R804	1-249-437-11	CARBON 47K 5% 1/4W	
C854	1-162-288-31	CERAMIC 330PF 10% 50V		R805	1-249-417-11	CARBON 1K 5% 1/4W	
C855	1-126-051-11	ELECT 47uF 20% 50V					
C856	1-126-051-11	ELECT 47uF 20% 50V		R806	1-249-437-11	CARBON 47K 5% 1/4W	
C857	1-136-495-11	FILM 0.068uF 5% 50V		R807	1-260-103-11	CARBON 2.2K 5% 1/2W	
C858	1-136-495-11	FILM 0.068uF 5% 50V		R808	1-260-103-11	CARBON 2.2K 5% 1/2W	
C871	1-126-933-11	ELECT 100uF 20% 16V		Δ R809	1-217-151-00	METAL 0.22 10% 2W F	
		< CONNECTOR >		R810	1-249-417-11	CARBON 1K 5% 1/4W	
CN801	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P					
* CN802	1-564-518-11	PLUG, CONNECTOR 3P		R811	1-249-431-11	CARBON 15K 5% 1/4W	
		< DIODE >		R812	1-260-076-11	CARBON 10 5% 1/2W	
D801	8-719-911-19	DIODE 1SS119-25		Δ R821	1-212-881-11	FUSIBLE 100 5% 1/4W F	
D802	8-719-911-19	DIODE 1SS119-25		R822	1-260-099-11	CARBON 1K 5% 1/2W	
D832	8-719-500-56	DIODE D3SBA20		R823	1-260-099-11	CARBON 1K 5% 1/2W	
				R824	1-249-441-11	CARBON 100K 5% 1/4W	
				R825	1-249-433-11	CARBON 22K 5% 1/4W	

Ref. No.	Part No.	Description			Remark
△ R831	1-212-881-11	FUSIBLE	100	5%	1/4W F
R841	1-249-437-11	CARBON	47K	5%	1/4W
R842	1-249-437-11	CARBON	47K	5%	1/4W
R843	1-249-441-11	CARBON	100K	5%	1/4W
R844	1-247-807-31	CARBON	100	5%	1/4W
R845	1-249-441-11	CARBON	100K	5%	1/4W
R851	1-249-421-11	CARBON	2.2K	5%	1/4W
R852	1-249-429-11	CARBON	10K	5%	1/4W
R853	1-249-437-11	CARBON	47K	5%	1/4W
R854	1-249-437-11	CARBON	47K	5%	1/4W
R855	1-249-417-11	CARBON	1K	5%	1/4W
R856	1-249-437-11	CARBON	47K	5%	1/4W
R857	1-260-103-11	CARBON	2.2K	5%	1/2W
R858	1-260-103-11	CARBON	2.2K	5%	1/2W
△ R859	1-217-151-00	METAL	0.22	10%	2W F
R860	1-249-417-11	CARBON	1K	5%	1/4W
R861	1-249-431-11	CARBON	15K	5%	1/4W
R862	1-260-076-11	CARBON	10	5%	1/2W
R871	1-249-441-11	CARBON	100K	5%	1/4W
R872	1-249-429-11	CARBON	10K	5%	1/4W
R873	1-249-439-11	CARBON	68K	5%	1/4W
R874	1-249-437-11	CARBON	47K	5%	1/4W
△ R877	1-202-972-61	FUSIBLE	1	5%	1/4W F

A-4725-056-A BD (MD) BOARD, COMPLETE

< CAPACITOR >

C101	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C102	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C105	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C108	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C109	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C110	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C111	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C112	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C113	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C114	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C115	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C116	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C119	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C120	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C121	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C125	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C128	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C131	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C132	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C133	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C141	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C142	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C143	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C144	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remark
C145	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C146	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C147	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C151	1-117-370-11	CERAMIC CHIP	10uF		10V
C152	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C153	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C154	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C155	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C156	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C157	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C158	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C159	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C160	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C161	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C163	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C164	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C165	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C166	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C167	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C169	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C173	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C174	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C180	1-117-370-11	CERAMIC CHIP	10uF		10V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C183	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C184	1-117-970-11	ELECT CHIP	22uF	20%	10V
C185	1-128-795-91	ELECT CHIP	470PF	10%	630V
C191	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C192	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C193	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C194	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C195	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C196	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1401	1-117-720-11	CERAMIC CHIP	4.7uF		10V
< CONNECTOR >					
CN101	1-766-833-21	CONNECTOR, FFC/FPC (ZIF) 21P			
CN102	1-784-835-21	CONNECTOR, FFC (LIF (NON-ZIF)) 27P			
CN103	1-784-869-21	CONNECTOR, FFC (LIF (NON-ZIF)) 17P			
* CN104	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN105	1-784-859-21	CONNECTOR, FFC (LIF (NON-ZIF)) 7P			
< DIODE >					
D101	8-719-988-61	DIODE 1SS355TE-17			
D181	8-719-046-86	DIODE F1J6TP			
D183	8-719-046-86	DIODE F1J6TP			
< IC >					
IC101	8-752-080-95	IC CXA2523AR			
IC102	8-759-473-51	IC TLV2361CDBV			
IC141	8-759-430-25	IC BH6511FS			
IC151	8-752-404-64	IC CXD2662R			
IC152	8-759-599-51	IC MSM51V17400D-50TS-K			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC190	8-759-677-64	IC L88M35T			

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark	
IC195	8-759-640-41	IC BR24C08F-E2					R114	1-216-827-11	METAL CHIP	3.3K	5%	1/16W		
							R115	1-216-833-11	METAL CHIP	10K	5%	1/16W		
< SHORT >														
JW201	1-216-295-11	SHORT	0				R116	1-216-839-11	METAL CHIP	33K	5%	1/16W		
JW202	1-216-295-11	SHORT	0				R117	1-216-837-11	METAL CHIP	22K	5%	1/16W		
JW203	1-216-295-11	SHORT	0				R118	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W		
JW903	1-216-295-11	SHORT	0				R119	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W		
JW904	1-216-295-11	SHORT	0				R120	1-218-889-11	METAL CHIP	56K	0.5%	1/16W		
< COIL/SHORT >														
L101	1-500-245-11	FERRITE BEAD					R121	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W		
L102	1-500-245-11	FERRITE BEAD					R122	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W		
L103	1-500-245-11	FERRITE BEAD					R123	1-216-819-11	METAL CHIP	680	5%	1/16W		
L105	1-414-235-22	FERRITE BEAD					R124	1-216-809-11	METAL CHIP	100	5%	1/16W		
L106	1-500-245-11	FERRITE BEAD					R125	1-216-815-11	METAL CHIP	330	5%	1/16W		
L121	1-500-245-11	FERRITE BEAD					R126	1-216-819-11	METAL CHIP	680	5%	1/16W		
L122	1-500-245-11	FERRITE BEAD					R127	1-216-845-11	METAL CHIP	100K	5%	1/16W		
L131	1-500-245-11	FERRITE BEAD					R128	1-219-724-11	METAL CHIP	1	1%	1/4W		
L141	1-412-029-11	INDUCTOR CHIP	10uH				R129	1-216-298-00	METAL CHIP	2.2	5%	1/10W		
L142	1-412-032-11	INDUCTOR CHIP	100uH				R130	1-216-829-11	METAL CHIP	4.7K	5%	1/16W		
L143	1-412-029-11	INDUCTOR CHIP	10uH				R131	1-216-837-11	METAL CHIP	22K	5%	1/16W		
L144	1-412-032-11	INDUCTOR CHIP	100uH				R132	1-216-840-11	METAL CHIP	39K	5%	1/16W		
L145	1-412-032-11	INDUCTOR CHIP	100uH				R133	1-216-821-11	METAL CHIP	1K	5%	1/16W		
L146	1-469-855-21	FERRITE	0uH				R134	1-216-821-11	METAL CHIP	1K	5%	1/16W		
L147	1-469-855-21	FERRITE	0uH				R135	1-216-821-11	METAL CHIP	1K	5%	1/16W		
L161	1-500-245-11	FERRITE BEAD					R136	1-216-302-00	METAL CHIP	2.7	5%	1/10W		
L171	1-500-245-11	FERRITE BEAD					R138	1-216-833-11	METAL CHIP	10K	5%	1/16W		
L180	1-469-855-21	FERRITE	0uH				R150	1-216-833-11	METAL CHIP	10K	5%	1/16W		
L181	1-469-855-21	FERRITE	0uH				R151	1-216-833-11	METAL CHIP	10K	5%	1/16W		
L182	1-500-245-11	FERRITE BEAD					R153	1-216-833-11	METAL CHIP	10K	5%	1/16W		
L183	1-216-296-00	SHORT	0				R155	1-216-864-11	METAL CHIP	0	5%	1/16W		
L184	1-216-296-00	SHORT	0				R156	1-216-864-11	METAL CHIP	0	5%	1/16W		
< TRANSISTOR >							R158	1-216-809-11	METAL CHIP	100	5%	1/16W		
Q101	8-729-403-35	TRANSISTOR	UN5113				R162	1-216-833-11	METAL CHIP	10K	5%	1/16W		
Q121	8-729-403-35	TRANSISTOR	UN5113				R167	1-216-833-11	METAL CHIP	10K	5%	1/16W		
Q122	8-729-101-07	TRANSISTOR	2SB798-T1DK				R168	1-216-845-11	METAL CHIP	100K	5%	1/16W		
Q131	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR				R169	1-216-855-11	METAL CHIP	680K	5%	1/16W		
Q132	8-729-903-10	TRANSISTOR	FMW1-T-148				R170	1-216-827-11	METAL CHIP	3.3K	5%	1/16W		
Q133	8-729-421-26	TRANSISTOR	UN5216QRS				R171	1-216-821-11	METAL CHIP	1K	5%	1/16W		
Q134	8-729-421-26	TRANSISTOR	UN5216QRS				R173	1-216-821-11	METAL CHIP	1K	5%	1/16W		
Q181	8-729-048-87	FET	2SJ518AZTR											
Q182	8-729-048-88	FET	2SK2788VYTR				R174	1-216-811-11	METAL CHIP	150	5%	1/16W		
							R177	1-216-805-11	METAL CHIP	47	5%	1/16W		
< RESISTOR >							R179	1-216-295-11	SHORT	0				
R101	1-216-829-11	METAL CHIP	4.7K	5%	1/16W		R181	1-216-841-11	METAL CHIP	47K	5%	1/16W		
R102	1-216-853-11	METAL CHIP	470K	5%	1/16W		R182	1-216-841-11	METAL CHIP	47K	5%	1/16W		
R103	1-216-863-11	RES-CHIP	3.3M	5%	1/16W		R183	1-216-841-11	METAL CHIP	47K	5%	1/16W		
R104	1-216-853-11	METAL CHIP	470K	5%	1/16W		R185	1-216-295-11	SHORT	0				
R105	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R195	1-216-833-11	METAL CHIP	10K	5%	1/16W		
							R196	1-216-833-11	METAL CHIP	10K	5%	1/16W		
R106	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R197	1-216-833-11	METAL CHIP	10K	5%	1/16W		
R107	1-216-825-11	METAL CHIP	2.2K	5%	1/16W		R218	1-216-864-11	METAL CHIP	0	5%	1/16W		
R108	1-216-833-11	METAL CHIP	10K	5%	1/16W		< SWITCH >							
R109	1-216-845-11	METAL CHIP	100K	5%	1/16W		S101	1-762-596-21	SWITCH, PUSH (1 KEY) (LIMIT IN)					
R110	1-216-845-11	METAL CHIP	100K	5%	1/16W		S103	1-771-956-21	SWITCH, PUSH (1 KEY) (PACK OUT)					
							S104	1-771-955-21	SWITCH, PUSH (1 KEY) (PLAY POSITION)					
							S105	1-771-955-21	SWITCH, PUSH (1 KEY) (REC POSITION)					
R111	1-216-833-11	METAL CHIP	10K	5%	1/16W									
R112	1-216-829-11	METAL CHIP	4.7K	5%	1/16W									
R113	1-216-833-11	METAL CHIP	10K	5%	1/16W									

Ref. No.	Part No.	Description	Remark			
< VIBRATOR >						
X171	1-781-569-21	OSCILLATOR, CRYSTAL (90.3168MHz)				

	1-678-380-11	BL BOARD				

< CAPACITOR >						
C623	1-163-009-11	CERAMIC	1000PF	10%	50V	
C624	1-163-009-11	CERAMIC	1000PF	10%	50V	
C625	1-163-009-11	CERAMIC	1000PF	10%	50V	
< CONNECTOR >						
CN605	1-750-490-11	PIN, CONNECTOR (PC BOARD) 2P				
< LED >						
D607	8-719-080-96	LED NSSW440TVR (LCD BACK LIGHT)				
D608	8-719-080-96	LED NSSW440TVR (LCD BACK LIGHT)				
D609	8-719-080-96	LED NSSW440TVR (LCD BACK LIGHT)				
< RESISTOR >						
R650	1-216-013-00	METAL CHIP	33	5%	1/10W	
R651	1-216-013-00	METAL CHIP	33	5%	1/10W	
R652	1-216-013-00	METAL CHIP	33	5%	1/10W	

	1-674-336-12	LOADING BOARD				

< CONNECTOR >						
* CN151	1-568-943-11	PIN, CONNECTOR 5P				
< SWITCH >						
S1	1-771-799-11	SWITCH, LEVER (SLIDE)				
(CD TRAY OPEN/CLOSE DETECT)						

	A-4473-543-A	MAIN BOARD, COMPLETE (AEP, UK)				
	A-4473-549-A	MAIN BOARD, COMPLETE (US, CND)				
	A-4473-552-A	MAIN BOARD, COMPLETE (MY, SP, HK, AUS)				
	A-4475-166-A	MAIN BOARD, COMPLETE (JE)				

*	3-309-144-21	HEAT SINK				
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S				
< LITHIUM BATTERY >						
BT921	1-528-938-11	BATTERY, LITHIUM ION SECONDARY				
< CAPACITOR >						
C101	1-162-282-31	CERAMIC	100PF	10%	50V	
C102	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C103	1-126-964-11	ELECT	10uF	20%	50V	
C104	1-126-964-11	ELECT	10uF	20%	50V	
C108	1-137-194-51	FILM	0.47uF	5%	50V	
C111	1-162-282-31	CERAMIC	100PF	10%	50V	
C112	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C113	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C121	1-126-933-11	ELECT	100uF	20%	16V	

Ref. No.	Part No.	Description	Remark			
C142	1-126-933-11	ELECT	100uF	20%	16V	
C144	1-126-925-11	ELECT	470uF	20%	10V	
C145	1-126-933-11	ELECT	100uF	20%	16V	
C146	1-124-698-81	ELECT	100uF	20%	25V	
C151	1-162-282-31	CERAMIC	100PF	10%	50V	
C152	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C153	1-126-964-11	ELECT	10uF	20%	50V	
C154	1-126-964-11	ELECT	10uF	20%	50V	
C301	1-124-721-11	ELECT	10uF	20%	50V	
C302	1-162-282-31	CERAMIC	100PF	10%	50V	
C303	1-126-964-11	ELECT	10uF	20%	50V	
C305	1-124-721-11	ELECT	10uF	20%	50V	
C306	1-162-282-31	CERAMIC	100PF	10%	50V	
C307	1-126-964-11	ELECT	10uF	20%	50V	
C310	1-130-471-00	MYLAR	0.001uF	5%	50V	
C311	1-124-721-11	ELECT	10uF	20%	50V	
C312	1-136-165-00	FILM	0.1uF	5%	50V	
C313	1-126-957-11	ELECT	0.22uF	20%	50V	
C314	1-130-473-00	MYLAR	0.0015uF	5%	50V	
C315	1-124-721-11	ELECT	10uF	20%	50V	
C316	1-136-165-00	FILM	0.1uF	5%	50V	
C317	1-136-165-00	FILM	0.1uF	5%	50V	
C321	1-126-964-11	ELECT	10uF	20%	50V	
C322	1-126-964-11	ELECT	10uF	20%	50V	
C323	1-124-721-11	ELECT	10uF	20%	50V	
C324	1-124-724-11	ELECT	47uF	20%	50V	
C325	1-130-477-00	MYLAR	0.0033uF	5%	50V	
C326	1-162-286-31	CERAMIC	220PF	10%	50V	
C351	1-124-721-11	ELECT	10uF	20%	50V	
C352	1-162-282-31	CERAMIC	100PF	10%	50V	
C353	1-126-964-11	ELECT	10uF	20%	50V	
C355	1-124-721-11	ELECT	10uF	20%	50V	
C356	1-162-282-31	CERAMIC	100PF	10%	50V	
C357	1-126-964-11	ELECT	10uF	20%	50V	
C360	1-130-471-00	MYLAR	0.001uF	5%	50V	
C361	1-124-721-11	ELECT	10uF	20%	50V	
C362	1-136-165-00	FILM	0.1uF	5%	50V	
C363	1-126-957-11	ELECT	0.22uF	20%	50V	
C364	1-130-473-00	MYLAR	0.0015uF	5%	50V	
C365	1-124-721-11	ELECT	10uF	20%	50V	
C366	1-136-165-00	FILM	0.1uF	5%	50V	
C367	1-136-165-00	FILM	0.1uF	5%	50V	
C401	1-126-933-11	ELECT	100uF	20%	16V	(AEP, UK)
C402	1-162-286-31	CERAMIC	220PF	10%	50V	(AEP, UK)
C411	1-126-964-11	ELECT	10uF	20%	50V	
C501	1-164-025-51	CERAMIC	18PF	5%	50V	
C502	1-164-027-11	CERAMIC	22PF	5%	50V	
C503	1-126-935-11	ELECT	470uF	20%	6.3V	
C504	1-126-960-11	ELECT	1uF	20%	50V	
C505	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C506	1-126-964-11	ELECT	10uF	20%	50V	
C507	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C509	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C510	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C511	1-164-159-11	CERAMIC	0.1uF		50V	
C901	1-136-165-00	FILM	0.1uF	5%	50V	

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
C902	1-126-767-11	ELECT	1000uF	20%	16V				< COIL >				
C905	1-126-926-11	ELECT	1000uF	20%	10V		FB111	1-412-473-21	INDUCTOR	0uH			
C906	1-126-964-11	ELECT	10uF	20%	50V		FB112	1-412-473-21	INDUCTOR	0uH			
C907	1-126-925-11	ELECT	470uF	20%	10V				< IC >				
C911	1-126-925-11	ELECT	470uF	20%	10V		IC103	8-759-566-46	IC	P82B715PN			
C914	1-126-926-11	ELECT	1000uF	20%	10V		IC121	8-749-017-36	IC	TORX-179 (DIGITAL OPTICAL IN)			
C915	1-126-964-11	ELECT	10uF	20%	50V		IC301	8-759-494-40	IC	M62428AFP600C			
C916	1-126-926-11	ELECT	1000uF	20%	10V		IC501	8-759-695-90	IC	uPDSS3033AYGF-M11-3BA			
C918	1-126-964-11	ELECT	10uF	20%	50V		IC901	8-759-394-35	IC	BA12T			
C919	1-126-964-11	ELECT	10uF	20%	50V		IC903	8-759-450-49	IC	BA07T			
C920	1-126-926-11	ELECT	1000uF	20%	10V		IC911	8-759-450-47	IC	BA05T			
C931	1-126-933-11	ELECT	100uF	20%	16V		IC912	8-759-686-72	IC	uPD29L04J-T			
C932	1-126-960-11	ELECT	1uF	20%	50V		IC913	8-759-701-75	IC	NJM7805FA			
C933	1-164-159-11	CERAMIC	0.1uF		50V		IC914	8-759-701-75	IC	NJM7805FA			
C934	1-162-306-11	CERAMIC	0.01uF	30%	16V		IC931	8-759-481-02	IC	M62016L			
C935	1-162-306-11	CERAMIC	0.01uF	30%	16V		IC941	8-759-637-58	IC	PST592C-T			
C941	1-126-964-11	ELECT	10uF	20%	50V				< JACK >				
C942	1-164-159-11	CERAMIC	0.1uF		50V		J101	1-779-902-91	JACK, PIN 4P (TAPE IN/OUT)				
C943	1-164-159-11	CERAMIC	0.1uF		50V				< COIL >				
C945	1-124-721-11	ELECT	10uF	20%	50V		L142	1-408-117-00	INDUCTOR	10uH			
< CONNECTOR >									< TRANSISTOR >				
* CN100	1-568-844-11	SOCKET, CONNECTOR 29P					Q101	8-729-620-05	TRANSISTOR	2SC2603-EF			
* CN101	1-770-723-11	CONNECTOR, BOARD TO BOARD 8P					Q102	8-729-900-63	TRANSISTOR	DTA124ES			
* CN102	1-566-856-11	SOCKET, CONNECTOR 5P (TAPE CONTROL)					Q103	8-729-044-08	TRANSISTOR	2SD1915 (F)-T (TA).SO			
CN103	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P					Q111	8-729-048-96	FET	2SK1825			
CN104	1-774-136-11	CONNECTOR, ROUND TYPE 6P (PC LINK)					Q112	8-729-048-96	FET	2SK1825			
CN105	1-784-776-11	CONNECTOR, FFC 15P					Q151	8-729-620-05	TRANSISTOR	2SC2603-EF			
CN106	1-568-683-11	PIN, CONNECTOR (PC BAORD) 2P					Q301	8-729-620-05	TRANSISTOR	2SC2603-EF			
CN107	1-784-792-11	CONNECTOR, FFC 31P					Q351	8-729-620-05	TRANSISTOR	2SC2603-EF			
* CN109	1-564-506-11	PLUG, CONNECTOR 3P					Q401	8-729-620-05	TRANSISTOR	2SC2603-EF (AEP, UK)			
CN401	1-770-593-41	CONNECTOR, BOARD TO BOARD 5P (AEP, UK)					Q551	8-729-422-73	TRANSISTOR	UN4212			
< DIODE >							Q552	8-729-900-63	TRANSISTOR	DTA124ES			
D101	8-719-200-82	DIODE	11ES2				Q931	8-729-620-05	TRANSISTOR	2SC2603-EF			
D301	8-719-109-85	DIODE	RD5.1ESB2				Q941	8-729-620-05	TRANSISTOR	2SC2603-EF			
D302	8-719-911-19	DIODE	1SS119-25				< RESISTOR >						
D401	8-719-109-85	DIODE	RD5.1ESB2				R101	1-249-441-11	CARBON	100K	5%	1/4W	
D910	8-719-200-82	DIODE	11ES2				R102	1-249-417-11	CARBON	1K	5%	1/4W	
D912	8-719-911-19	DIODE	1SS119-25				R103	1-249-429-11	CARBON	10K	5%	1/4W	
D913	8-719-911-19	DIODE	1SS119-25				R104	1-249-417-11	CARBON	1K	5%	1/4W	
D914	8-719-911-19	DIODE	1SS119-25				R105	1-249-441-11	CARBON	100K	5%	1/4W	
D915	8-719-911-19	DIODE	1SS119-25				R110	1-249-425-11	CARBON	4.7K	5%	1/4W	
D916	8-719-200-82	DIODE	11ES2				R111	1-249-393-11	CARBON	10	5%	1/4W	
D917	8-719-200-82	DIODE	11ES2				R112	1-249-393-11	CARBON	10	5%	1/4W	
D918	8-719-210-21	DIODE	11EQS04				R114	1-249-421-11	CARBON	2.2K	5%	1/4W	
D922	8-719-911-19	DIODE	1SS119-25				R115	1-249-421-11	CARBON	2.2K	5%	1/4W	
D923	8-719-911-19	DIODE	1SS119-25				R117	1-249-437-11	CARBON	47K	5%	1/4W	
D924	8-719-911-19	DIODE	1SS119-25				R118	1-249-441-11	CARBON	100K	5%	1/4W	
D941	8-719-911-19	DIODE	1SS119-25				R119	1-249-393-11	CARBON	10	5%	1/4W	
D942	8-719-911-19	DIODE	1SS119-25				R121	1-249-409-11	CARBON	220	5%	1/4W	
D943	8-719-911-19	DIODE	1SS119-25				R141	1-260-064-11	CARBON	1	5%	1/2W	
< GROUND TERMINAL >							R151	1-249-441-11	CARBON	100K	5%	1/4W	
EP1	1-537-770-21	TERMINAL BOARD, GROUND											

MAIN

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R152	1-249-417-11	CARBON	1K	5%	1/4W	R511	1-249-429-11	CARBON	10K	5%	1/4W
R153	1-249-429-11	CARBON	10K	5%	1/4W	R512	1-249-417-11	CARBON	1K	5%	1/4W
R154	1-249-417-11	CARBON	1K	5%	1/4W	R513	1-247-807-31	CARBON	100	5%	1/4W
R155	1-249-441-11	CARBON	100K	5%	1/4W	R514	1-247-807-31	CARBON	100	5%	1/4W
R302	1-247-843-11	CARBON	3.3K	5%	1/4W (AEP, UK)	R515	1-249-417-11	CARBON	1K	5%	1/4W
R302	1-249-431-11	CARBON	15K	5%	1/4W (EXCEPT AEP, UK)	R516	1-247-807-31	CARBON	100	5%	1/4W
R303	1-249-441-11	CARBON	100K	5%	1/4W	R517	1-249-429-11	CARBON	10K	5%	1/4W
R304	1-249-417-11	CARBON	1K	5%	1/4W	R518	1-247-807-31	CARBON	100	5%	1/4W
R306	1-249-417-11	CARBON	1K	5%	1/4W	R519	1-249-417-11	CARBON	1K	5%	1/4W
R307	1-249-441-11	CARBON	100K	5%	1/4W	R520	1-249-437-11	CARBON	47K	5%	1/4W
R309	1-249-441-11	CARBON	100K	5%	1/4W	R521	1-247-807-31	CARBON	100	5%	1/4W
R312	1-249-424-11	CARBON	3.9K	5%	1/4W	R522	1-247-807-31	CARBON	100	5%	1/4W
R313	1-247-885-00	CARBON	180K	5%	1/4W	R523	1-247-807-31	CARBON	100	5%	1/4W
R314	1-249-435-11	CARBON	33K	5%	1/4W	R524	1-247-807-31	CARBON	100	5%	1/4W
R315	1-247-903-00	CARBON	1M	5%	1/4W	R525	1-249-417-11	CARBON	1K	5%	1/4W
R316	1-249-441-11	CARBON	100K	5%	1/4W	R526	1-249-417-11	CARBON	1K	5%	1/4W
R321	1-249-435-11	CARBON	33K	5%	1/4W	R527	1-249-417-11	CARBON	1K	5%	1/4W
R322	1-247-903-00	CARBON	1M	5%	1/4W	R528	1-249-429-11	CARBON	10K	5%	1/4W
R323	1-249-417-11	CARBON	1K	5%	1/4W	R529	1-249-429-11	CARBON	10K	5%	1/4W (US, CND)
R324	1-249-417-11	CARBON	1K	5%	1/4W	R530	1-249-429-11	CARBON	10K	5%	1/4W (EXCEPT JE)
R325	1-249-417-11	CARBON	1K	5%	1/4W	R531	1-249-429-11	CARBON	10K	5%	1/4W (JE)
R326	1-249-413-11	CARBON	470	5%	1/4W	R532	1-249-429-11	CARBON	10K	5%	1/4W (US, CND)
R352	1-247-843-11	CARBON	3.3K	5%	1/4W (AEP, UK)	R533	1-249-429-11	CARBON	10K	5%	1/4W (EXCEPT US, CND)
R352	1-249-431-11	CARBON	15K	5%	1/4W (EXCEPT AEP, UK)	R534	1-249-429-11	CARBON	10K	5%	1/4W (MY, SP, HK, AUS, JE)
R353	1-249-441-11	CARBON	100K	5%	1/4W	R535	1-249-429-11	CARBON	10K	5%	1/4W (US, CND, AEP, UK)
R354	1-249-417-11	CARBON	1K	5%	1/4W	R536	1-247-891-00	CARBON	330K	5%	1/4W
R356	1-249-417-11	CARBON	1K	5%	1/4W	R538	1-249-431-11	CARBON	15K	5%	1/4W
R357	1-249-441-11	CARBON	100K	5%	1/4W	R539	1-249-431-11	CARBON	15K	5%	1/4W
R359	1-249-441-11	CARBON	100K	5%	1/4W	R540	1-249-431-11	CARBON	15K	5%	1/4W
R362	1-249-424-11	CARBON	3.9K	5%	1/4W	R541	1-249-429-11	CARBON	10K	5%	1/4W
R363	1-247-885-00	CARBON	180K	5%	1/4W	R542	1-249-417-11	CARBON	1K	5%	1/4W
R364	1-249-435-11	CARBON	33K	5%	1/4W	R543	1-249-417-11	CARBON	1K	5%	1/4W
R365	1-247-903-00	CARBON	1M	5%	1/4W	R545	1-249-431-11	CARBON	15K	5%	1/4W
R366	1-249-441-11	CARBON	100K	5%	1/4W	R546	1-247-807-31	CARBON	100	5%	1/4W
R401	1-249-417-11	CARBON	1K	5%	1/4W (AEP, UK)	R549	1-249-429-11	CARBON	10K	5%	1/4W
R402	1-249-417-11	CARBON	1K	5%	1/4W (AEP, UK)	R550	1-249-429-11	CARBON	10K	5%	1/4W
R403	1-249-429-11	CARBON	10K	5%	1/4W (AEP, UK)	R551	1-249-429-11	CARBON	10K	5%	1/4W
R406	1-249-412-11	CARBON	390	5%	1/4W	R552	1-249-417-11	CARBON	1K	5%	1/4W
R407	1-249-429-11	CARBON	10K	5%	1/4W (EXCEPT AEP, UK)	R553	1-249-409-11	CARBON	220	5%	1/4W
R408	1-249-429-11	CARBON	10K	5%	1/4W (EXCEPT AEP, UK)	R554	1-249-417-11	CARBON	1K	5%	1/4W
R501	1-249-421-11	CARBON	2.2K	5%	1/4W	R555	1-249-433-11	CARBON	22K	5%	1/4W
R502	1-249-421-11	CARBON	2.2K	5%	1/4W	R924	1-249-411-11	CARBON	330	5%	1/4W
R503	1-249-429-11	CARBON	10K	5%	1/4W	R931	1-247-887-00	CARBON	220K	5%	1/4W
R504	1-247-807-31	CARBON	100	5%	1/4W	R932	1-249-441-11	CARBON	100K	5%	1/4W
R505	1-247-807-31	CARBON	100	5%	1/4W	R933	1-249-433-11	CARBON	22K	5%	1/4W
R506	1-247-807-31	CARBON	100	5%	1/4W	R941	1-249-413-11	CARBON	470	5%	1/4W
R507	1-249-429-11	CARBON	10K	5%	1/4W	R942	1-249-429-11	CARBON	10K	5%	1/4W
R508	1-247-807-31	CARBON	100	5%	1/4W	R943	1-249-437-11	CARBON	47K	5%	1/4W
R509	1-247-843-11	CARBON	3.3K	5%	1/4W	R946	1-249-433-11	CARBON	22K	5%	1/4W
R510	1-249-417-11	CARBON	1K	5%	1/4W	R947	1-249-437-11	CARBON	47K	5%	1/4W

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
< VIBRATOR >							C1106	1-163-038-11	CERAMIC CHIP	0.1uF		25V	
X501	1-781-107-21	VIBRATOR, CERAMIC (16MHz)					C1107	1-126-960-11	ELECT	1uF	20%	50V	
X502	1-567-098-41	VIBRATOR, CRYSTAL (32.768kHz)					C1108	1-163-038-11	CERAMIC CHIP	0.1uF		25V	
*****							C1109	1-163-038-11	CERAMIC CHIP	0.1uF		25V	
A-4473-547-A MD DIGITAL BOARD, COMPLETE							C1110	1-126-933-11	ELECT	100uF	20%	16V	
*****							C1111	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
< CAPACITOR >							C1112	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
							C1113	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C1001	1-126-934-11	ELECT	220uF	20%	10V		C1114	1-163-038-11	CERAMIC CHIP	0.1uF		25V	
C1002	1-163-038-11	CERAMIC CHIP	0.1uF		25V		C1115	1-126-933-11	ELECT	100uF	20%	16V	
C1003	1-126-933-11	ELECT	100uF	20%	16V		C1116	1-163-038-11	CERAMIC CHIP	0.1uF		25V	
C1004	1-163-038-11	CERAMIC CHIP	0.1uF		25V		C1117	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C1005	1-126-933-11	ELECT	100uF	20%	16V		C1118	1-126-934-11	ELECT	220uF	20%	16V	
							C1120	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C1006	1-163-038-11	CERAMIC CHIP	0.1uF		25V		C1121	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C1007	1-126-933-11	ELECT	100uF	20%	16V	< CONNECTOR >							
C1008	1-163-038-11	CERAMIC CHIP	0.1uF		25V		CN1001	1-784-753-11	CONNECTOR, FFC 31P				
C1009	1-163-038-11	CERAMIC CHIP	0.1uF		25V		CN1002	1-779-558-21	CONNECTOR, FFC (LIF (NON-ZIF)) 21P				
C1010	1-124-994-11	ELECT	100uF	20%	10V		CN1003	1-779-295-11	CONNECTOR, FFC (LIF (NON-ZIF)) 27P				
							CN1004	1-779-285-11	CONNECTOR, FFC (LIF (NON-ZIF)) 17P				
C1011	1-163-038-11	CERAMIC CHIP	0.1uF		25V	*	CN1005	1-568-943-11	PIN, CONNECTOR 5P				
C1012	1-126-048-81	ELECT	10uF	20%	50V		CN1007	1-779-277-11	CONNECTOR, FFC (LIF (NON-ZIF)) 9P				
C1013	1-126-933-11	ELECT	100uF	20%	16V	< DIODE/SHORT >							
C1014	1-163-038-11	CERAMIC CHIP	0.1uF		25V		D1102	8-719-210-33	DIODE EC10DS2				
C1015	1-126-933-11	ELECT	100uF	20%	16V		D1103	8-719-210-33	DIODE EC10DS2				
							D1104	8-719-988-61	DIODE 1SS355TE-17				
C1016	1-163-038-11	CERAMIC CHIP	0.1uF		25V		D1106	8-719-988-61	DIODE 1SS355TE-17				
C1017	1-163-038-11	CERAMIC CHIP	0.1uF		25V		D1108	8-719-988-61	DIODE 1SS355TE-17				
C1018	1-163-038-11	CERAMIC CHIP	0.1uF		25V								
C1019	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		D1109	1-216-296-00	SHORT	0			
C1020	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	< IC >							
							IC1001	8-759-677-81	IC M30805SGP				
C1021	1-163-038-11	CERAMIC CHIP	0.1uF		25V		IC1002	8-759-712-40	IC MT28F800B3WG-10T-SYS70				
C1022	1-126-933-11	ELECT	100uF	20%	16V		IC1004	8-759-822-09	IC LB1641				
C1023	1-163-038-11	CERAMIC CHIP	0.1uF		25V		IC1005	8-759-675-78	IC uDA1360TS				
C1024	1-163-038-11	CERAMIC CHIP	0.1uF		25V		IC1006	8-759-675-77	IC uDA1350AH				
C1025	1-163-038-11	CERAMIC CHIP	0.1uF		25V		IC1008	8-759-548-57	IC SN74LV00ANSR				
							IC1101	8-759-683-23	IC uPDSS3033AYGF-M05-3BA				
C1026	1-126-933-11	ELECT	100uF	20%	16V		IC1102	8-759-822-09	IC LB1641				
C1027	1-163-031-11	CERAMIC CHIP	0.01uF		50V	< COIL >							
C1030	1-163-038-11	CERAMIC CHIP	0.1uF		25V	L1001	1-412-533-21	INDUCTOR	47uH				
C1031	1-163-038-11	CERAMIC CHIP	0.1uF		25V	< TRANSISTOR >							
C1034	1-163-031-11	CERAMIC CHIP	0.01uF		50V	Q1001	8-729-421-19	TRANSISTOR	UN2213				
						Q1002	8-729-602-36	TRANSISTOR	2SA1602-F				
C1035	1-163-038-11	CERAMIC CHIP	0.1uF		25V	Q1003	8-729-602-36	TRANSISTOR	2SA1602-F				
C1037	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	Q1004	8-729-424-18	TRANSISTOR	UN2113				
C1038	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	Q1101	8-729-421-19	TRANSISTOR	UN2213				
C1039	1-163-117-00	CERAMIC CHIP	100PF	5%	50V		Q1102	8-729-010-08	TRANSISTOR	MSB710-R			
C1040	1-163-117-00	CERAMIC CHIP	100PF	5%	50V		Q1103	8-729-602-21	TRANSISTOR	2SC4154-F			
						< RESISTOR >							
C1041	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	R1001	1-216-066-00	METAL CHIP	5.1K	5%	1/10W		
C1044	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V								
C1045	1-126-933-11	ELECT	100uF	20%	16V								
C1046	1-136-153-00	FILM	0.01uF	5%	50V								
C1047	1-136-153-00	FILM	0.01uF	5%	50V								
C1048	1-126-933-11	ELECT	100uF	20%	16V								
C1049	1-163-031-11	CERAMIC CHIP	0.01uF		50V								
C1050	1-163-031-11	CERAMIC CHIP	0.01uF		50V								
C1051	1-163-031-11	CERAMIC CHIP	0.01uF		50V								
C1052	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V								
C1102	1-163-038-11	CERAMIC CHIP	0.1uF		25V								
C1103	1-163-038-11	CERAMIC CHIP	0.1uF		25V								
C1104	1-126-960-11	ELECT	1uF	20%	50V								
C1105	1-126-933-11	ELECT	100uF	20%	16V								

MD DIGITAL

PANEL

Ref. No.	Part No.	Description			Remark
R1002	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R1005	1-216-025-11	RES-CHIP	100	5%	1/10W
R1006	1-216-025-11	RES-CHIP	100	5%	1/10W
R1007	1-216-025-11	RES-CHIP	100	5%	1/10W
R1010	1-216-025-11	RES-CHIP	100	5%	1/10W
R1011	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1012	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1013	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1014	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1015	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1016	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1017	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1018	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1021	1-216-025-11	RES-CHIP	100	5%	1/10W
R1024	1-216-025-11	RES-CHIP	100	5%	1/10W
R1029	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1030	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R1033	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R1034	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R1035	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1036	1-216-295-11	SHORT	0		
R1039	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1040	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1041	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1042	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1043	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1044	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1045	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1046	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1047	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1048	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1049	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1050	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1051	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1052	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1053	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1054	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1055	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1056	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1057	1-216-065-00	RES-CHIP	4.7K	5%	1/10W
R1058	1-216-025-11	RES-CHIP	100	5%	1/10W
R1059	1-216-025-11	RES-CHIP	100	5%	1/10W
R1060	1-216-025-11	RES-CHIP	100	5%	1/10W
R1071	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1072	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1073	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1076	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1078	1-216-295-11	SHORT	0		
R1079	1-216-295-11	SHORT	0		
R1080	1-216-295-11	SHORT	0		
R1082	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1083	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1084	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1087	1-216-065-00	RES-CHIP	4.7K	5%	1/10W
R1088	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R1090	1-216-041-00	METAL CHIP	470	5%	1/10W
R1091	1-216-033-00	METAL CHIP	220	5%	1/10W
R1092	1-216-033-00	METAL CHIP	220	5%	1/10W

Ref. No.	Part No.	Description			Remark
R1093	1-216-033-00	METAL CHIP	220	5%	1/10W
R1094	1-216-033-00	METAL CHIP	220	5%	1/10W
R1095	1-216-039-00	METAL CHIP	390	5%	1/10W
R1103	1-216-089-11	RES-CHIP	47K	5%	1/10W
R1104	1-216-081-00	METAL CHIP	22K	5%	1/10W
R1105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1106	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1107	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1108	1-216-089-11	RES-CHIP	47K	5%	1/10W
R1109	1-216-093-11	RES-CHIP	68K	5%	1/10W
R1110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1114	1-216-017-00	RES-CHIP	47	5%	1/10W
R1115	1-216-295-11	SHORT	0		
R1119	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1120	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1121	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1122	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1126	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1128	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1129	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1130	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1132	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1133	1-216-033-00	METAL CHIP	220	5%	1/10W
R1134	1-216-041-00	METAL CHIP	470	5%	1/10W
R1135	1-216-295-11	SHORT	0		
R1138	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1140	1-216-081-00	METAL CHIP	22K	5%	1/10W
R2002	1-216-296-00	SHORT	0		
R2003	1-216-296-00	SHORT	0		
< VIBRATOR >					
X1001	1-579-175-11	VIBRATOR, CERAMIC (10MHz)			
X1101	1-781-107-21	VIBRATOR, CERAMIC (16MHz)			

A-4473-535-A		PANEL BOARD, COMPLETE			

< CAPACITOR >					
C601	1-162-306-11	CERAMIC	0.01uF	30%	16V
C602	1-162-306-11	CERAMIC	0.01uF	30%	16V
C603	1-162-306-11	CERAMIC	0.01uF	30%	16V
C604	1-162-306-11	CERAMIC	0.01uF	30%	16V
C605	1-162-306-11	CERAMIC	0.01uF	30%	16V
C607	1-124-589-11	ELECT	47uF	20%	16V
C608	1-124-261-00	ELECT	10uF	20%	50V
C611	1-162-294-31	CERAMIC	0.001uF	10%	50V
C612	1-162-294-31	CERAMIC	0.001uF	10%	50V
C613	1-162-294-31	CERAMIC	0.001uF	10%	50V
C614	1-162-306-11	CERAMIC	0.01uF	30%	16V
C615	1-162-600-11	CERAMIC	0.0047uF	10%	16V
C616	1-162-600-11	CERAMIC	0.0047uF	10%	16V
C617	1-162-306-11	CERAMIC	0.01uF	30%	16V

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
C619	1-162-282-31	CERAMIC	100PF	10%	50V		R622	1-249-425-11	CARBON	4.7K	5%	1/4W	
							R623	1-249-425-11	CARBON	4.7K	5%	1/4W	
C620	1-162-286-31	CERAMIC	220PF	10%	50V		R625	1-249-402-11	CARBON	56	5%	1/4W	
C621	1-162-286-31	CERAMIC	220PF	10%	50V		R631	1-249-413-11	CARBON	470	5%	1/4W	
C622	1-162-282-31	CERAMIC	100PF	10%	50V								
		< CONNECTOR >					R632	1-249-415-11	CARBON	680	5%	1/4W	
							R633	1-249-417-11	CARBON	1K	5%	1/4W	
							R634	1-249-419-11	CARBON	1.5K	5%	1/4W	
CN600	1-779-546-11	CONNECTOR, FFC (LIF (NON-ZIF)) 9P					R635	1-249-419-11	CARBON	1.5K	5%	1/4W	
* CN601	1-568-871-11	SOCKET, CONNECTOR 29P					R636	1-249-421-11	CARBON	2.2K	5%	1/4W	
* CN602	1-568-951-11	PIN, CONNECTOR 2P											
		< LED >					R637	1-247-843-11	CARBON	3.3K	5%	1/4W	
							R638	1-249-413-11	CARBON	470	5%	1/4W	
D601	8-719-812-44	LED	TLO124 (I/⬤)				R639	1-249-413-11	CARBON	470	5%	1/4W	
D602	8-719-032-86	LED	SEL5420E (▶ (CD))				R640	1-249-415-11	CARBON	680	5%	1/4W	
D603	8-719-032-98	LED	SEL5820A (■ (CD))				R641	1-249-415-11	CARBON	680	5%	1/4W	
D604	8-719-032-86	LED	SEL5420E (▶ (MD))										
D605	8-719-032-98	LED	SEL5820A (■ (MD))				R642	1-249-417-11	CARBON	1K	5%	1/4W	
							R643	1-249-419-11	CARBON	1.5K	5%	1/4W	
D606	8-719-812-44	LED	TLO124 (REC)				R644	1-249-419-11	CARBON	1.5K	5%	1/4W	
		< IC >					R645	1-249-393-11	CARBON	10	5%	1/4W	
							R646	1-249-425-11	CARBON	4.7K	5%	1/4W	
IC602	8-759-332-18	IC	GP1U27XB				R647	1-249-441-11	CARBON	100K	5%	1/4W	
		< JACK >					R648	1-249-425-11	CARBON	4.7K	5%	1/4W	
							R649	1-249-441-11	CARBON	100K	5%	1/4W	
		< CONNECTOR >					< SWITCH >						
J601	1-764-106-21	JACK (PHONES)					S601	1-418-632-11	ENCODER, ROTARY (VOLUME)				
J602	1-764-106-21	JACK (ANALOG IN)					S602	1-762-875-21	SWITCH, KEYBOARD (I/⬤)				
		< CONNECTOR >					S603	1-762-875-21	SWITCH, KEYBOARD (CD ▲)				
							S604	1-762-875-21	SWITCH, KEYBOARD (CD-MD SYNC NORMAL)				
NO603	1-690-880-51	LEAD (WITH CONNECTOR)					S605	1-762-875-21	SWITCH, KEYBOARD (CD-MD SYNC HIGH)				
		< TRANSISTOR >					S606	1-762-875-21	SWITCH, KEYBOARD (REC/REC IT)				
Q601	8-729-422-57	TRANSISTOR	UN4111				S607	1-762-875-21	SWITCH, KEYBOARD (REC MODE)				
Q602	8-729-900-80	TRANSISTOR	DTC114ES				S608	1-762-875-21	SWITCH, KEYBOARD (REPEAT, STEREO/MONO)				
Q603	8-729-620-05	TRANSISTOR	2SC2603-EF				S609	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE, TUNING MODE)				
Q604	8-729-900-80	TRANSISTOR	DTC114ES				S610	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)				
Q605	8-729-900-80	TRANSISTOR	DTC114ES										
Q606	8-729-900-80	TRANSISTOR	DTC114ES				S611	1-762-875-21	SWITCH, KEYBOARD (■ (CD))				
Q608	8-729-900-80	TRANSISTOR	DTC114ES				S612	1-762-875-21	SWITCH, KEYBOARD (▶ ■ (CD))				
Q609	8-729-900-80	TRANSISTOR	DTC114ES				S613	1-762-875-21	SWITCH, KEYBOARD (◀◀◀ ◀◀, TUNING -)				
Q610	8-729-900-80	TRANSISTOR	DTC114ES				S614	1-762-875-21	SWITCH, KEYBOARD (▶▶▶ ▶▶, TUNING +)				
		< RESISTOR >					S615	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)				
							S616	1-762-875-21	SWITCH, KEYBOARD (■ (MD))				
R602	1-247-807-31	CARBON	100	5%	1/4W		S617	1-762-875-21	SWITCH, KEYBOARD (▶ ■ (MD))				
R603	1-247-807-31	CARBON	100	5%	1/4W		S618	1-762-875-21	SWITCH, KEYBOARD (MD ▲)				
R604	1-247-807-31	CARBON	100	5%	1/4W	*****							
R605	1-247-807-31	CARBON	100	5%	1/4W		A-4473-545-A	POWER BOARD, COMPLETE (AEP, UK)					
R606	1-247-807-31	CARBON	100	5%	1/4W		A-4473-550-A	POWER BOARD, COMPLETE (US, CND)					
							A-4473-553-A	POWER BOARD, COMPLETE (MY, SP, HK, JE)					
R607	1-249-417-11	CARBON	1K	5%	1/4W		A-4475-165-A	POWER BOARD, COMPLETE (AUS)					
R608	1-249-411-11	CARBON	330	5%	1/4W		*****						
R609	1-249-411-11	CARBON	330	5%	1/4W		1-533-293-11	FUSE HOLDER (MY, SP, HK, JE)					
R610	1-249-411-11	CARBON	330	5%	1/4W			< CAPACITOR >					
R611	1-249-411-11	CARBON	330	5%	1/4W								
R612	1-249-417-11	CARBON	1K	5%	1/4W		C922	1-126-925-11	ELECT	470uF	20%	10V	
R613	1-249-417-11	CARBON	1K	5%	1/4W		C923	1-126-933-11	ELECT	100uF	20%	16V	
R614	1-249-409-11	CARBON	220	5%	1/4W		C971	1-136-165-00	FILM	0.1uF	5%	50V	
R615	1-249-417-11	CARBON	1K	5%	1/4W		C972	1-126-936-11	ELECT	3300uF	20%	16V	
R616	1-249-417-11	CARBON	1K	5%	1/4W		C981	1-136-165-00	FILM	0.1uF	5%	50V	
R621	1-249-413-11	CARBON	470	5%	1/4W								

Ref. No.	Part No.	Description				Remark
C982	1-115-364-11	ELECT	22000uF	20%	16V	
C983	1-136-165-00	FILM	0.1uF	5%	50V	
C984	1-128-548-11	ELECT	4700uF	20%	25V	
△ C991	1-113-925-11	CERAMIC	0.01uF	20%	250V	
C992	1-126-963-11	ELECT	4.7uF	20%	50V	
< CONNECTOR >						
CN991	1-564-321-00	PIN, CONNECTOR 2P				
* CN992	1-564-687-11	PIN, CONNECTOR 3P (MY, SP, HK, AUS, JE)				
* CN992	1-564-321-21	PIN, CONNECTOR 2P (US, CND, AEP, UK)				
* CN993	1-564-519-11	PLUG, CONNECTOR 4P				
* CN994	1-770-727-11	CONNECTOR, BOARD TO BOARD 8P				
< DIODE >						
D921	8-719-200-82	DIODE	11ES2			
D971	8-719-200-82	DIODE	11ES2			
D972	8-719-200-82	DIODE	11ES2			
D973	8-719-200-82	DIODE	11ES2			
D974	8-719-200-82	DIODE	11ES2			
D981	8-719-302-38	DIODE	RBV-602-01 (MY, SP, HK, JE)			
D981	8-719-500-56	DIODE	D3SBA20 (US, CND, AEP, UK, AUS)			
D982	8-719-200-82	DIODE	11ES2			
D983	8-719-200-82	DIODE	11ES2			
D984	8-719-200-82	DIODE	11ES2			
D985	8-719-200-82	DIODE	11ES2			
D991	8-719-911-19	DIODE	1SS119-25			
D992	8-719-911-19	DIODE	1SS119-25			
D993	8-719-911-19	DIODE	1SS119-25			
< FUSE >						
△ F901	1-532-388-31	FUSE (T2AL/250V) (MY, SP, HK, AUS, JE)				
< IC >						
IC921	8-759-450-47	IC	BA05T			
< TRANSISTOR >						
Q991	8-729-620-05	TRANSISTOR	2SC2603-EF			
< RESISTOR >						
△ R981	1-219-119-81	FUSIBLE	0.1	5%	1/4W F	
△ R982	1-240-877-11	FUSIBLE	0.15	5%	1/2W F	
△ R990	1-202-725-00	SOLID	3.3M	10%	1/2W F	
(US, CND)						
R991	1-249-429-11	CARBON	10K	5%	1/4W	
R992	1-249-429-11	CARBON	10K	5%	1/4W	
R993	1-249-413-11	CARBON	470	5%	1/4W	
R994	1-249-413-11	CARBON	470	5%	1/4W	
R995	1-249-425-11	CARBON	4.7K	5%	1/4W	
< RELAY >						
△ RY991	1-755-276-11	RELAY, POWER				
< SWITCH >						
△ S991	1-571-309-11	SWITCH (VOLTAGE SELECTOR)				
(MY, SP, HK, JE)						

Ref. No.	Part No.	Description	Remark			
< TRANSFORMER >						
△ T901	1-435-573-11	TRANSFORMER, POWER (AEP, UK)				
△ T901	1-435-574-11	TRANSFORMER, POWER	(MY, SP, HK, AUS, JE)			
△ T901	1-435-575-11	TRANSFORMER, POWER (US, CND)				
△ T992	1-419-625-11	COIL, LINE FILTER				

	1-679-169-11	RDS IC BOARD (AEP, UK)				

< CAPACITOR >						
C403	1-126-961-11	ELECT	2.2uF	20%	50V	
C404	1-162-291-31	CERAMIC	560PF	10%	50V	
C405	1-126-933-11	ELECT	100uF	20%	16V	
C406	1-164-031-11	CERAMIC	33PF	5%	50V	
C407	1-164-031-11	CERAMIC	33PF	5%	50V	
< CONNECTOR >						
CN402	1-770-594-21	CONNECTOR, BOARD TO BOARD 5P				
< IC >						
IC401	8-759-560-51	IC BU1924F				
< RESISTOR >						
R404	1-259-880-11	CARBON	2.2M	5%	1/4W	
R405	1-249-417-11	CARBON	1K	5%	1/4W	
< VIBRATOR >						
X401	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz)				





	1-678-384-11	SP BOARD				

< CAPACITOR >						
C881	1-126-959-11	ELECT	0.47uF	20%	50V	
C882	1-136-495-11	FILM	0.068uF	5%	50V	
C883	1-136-495-11	FILM	0.068uF	5%	50V	
C884	1-136-495-11	FILM	0.068uF	5%	50V	
C885	1-136-495-11	FILM	0.068uF	5%	50V	
< CONNECTOR >						
CN881	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P				
CN882	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P				
< DIODE >						
D881	8-719-911-19	DIODE 1SS119-25				
D882	8-719-911-19	DIODE 1SS119-25				
< COIL >						
L881	1-420-872-00	COIL, AIR-CORE				
L882	1-420-872-00	COIL, AIR-CORE				
< TRANSISTOR >						
Q874	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q875	8-729-620-05	TRANSISTOR	2SC2603-EF			

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

<p>The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>	<p>以阴影和  标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。</p>
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REVISION HISTORY

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